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Dear Students:

Welcome to the Louisiana State University Health Sciences Center-Shreveport, School of Graduate Studies. I am delighted that you have chosen to join the program here, to pursue the highest degree awarded by this institution, the Ph.D. or the M.S. degree in Biomedical Sciences. Each of the Basic Sciences Departments has designed a curriculum that will provide you with the background and skills required to become independent research scientists. Some courses are part of a core curriculum, and others are specific for the individual Departments. Your training here will prepare you to achieve successful careers in academia, research, industry or numerous other professions.

A description of the program of study designed by each of the Basic Science Departments is included in this Handbook. Also included is general information about the Health Sciences Center School of Graduate Studies policies as well as specific information about the Shreveport campus.

This Handbook is meant to be a reference source for your graduate studies and will be updated every year. You will receive a copy of the updated version at the fall registration each year. It is also available on the School of Graduate Studies web site www.lsuhscshreveport.edu/gradschool. Look under Handbooks, then Student Handbook. Also available on the web site is a link to the LSUHSC catalog, all the forms you will need throughout your graduate studies, course schedules, lecture notes and links to the five Basic Science Departments. Please do not hesitate to contact me or your Departmental Program Directors if you need more information.

I wish the best to all of you during your studies here.

Sincerely,

Sandra C. Roerig Ph.D.
Dean, School of Graduate Studies
Associate Dean for Research
Professor, Department of Pharmacology, Toxicology & Neuroscience
# 2015-2016 School of Graduate Studies Schedule

## Fall Semester, 2015

### July

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>28-29</td>
<td>Tue/Wed</td>
<td>Orientation for new students</td>
</tr>
<tr>
<td>28</td>
<td>Tuesday</td>
<td>Registration for fall semester</td>
</tr>
</tbody>
</table>

### August

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Monday</td>
<td>Classes begin for fall semester</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fees due or within 2 weeks prior to this date</td>
</tr>
<tr>
<td>8</td>
<td>Saturday</td>
<td>Summer commencement</td>
</tr>
</tbody>
</table>

### September

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Monday</td>
<td>Labor Day holiday</td>
</tr>
</tbody>
</table>

### October

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Monday</td>
<td>Columbus Day holiday</td>
</tr>
</tbody>
</table>

### November

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Friday</td>
<td>Final date to submit request for Dissertation/Thesis Defense and Final Examination to graduate at Fall graduation.*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Final date to circulate announcement of M.S. or Ph.D. final Examination for Fall graduation to Graduate Faculty.*</td>
</tr>
<tr>
<td>16</td>
<td>Monday</td>
<td>Registration packets due for Spring Semester</td>
</tr>
<tr>
<td>20</td>
<td>Friday</td>
<td>Final date to convene M.S. or Ph.D. defense to graduate at Fall graduation.*</td>
</tr>
<tr>
<td>26-27</td>
<td>Th/Fri</td>
<td>Thanksgiving Holiday</td>
</tr>
<tr>
<td>30</td>
<td>Monday</td>
<td>Classes resume</td>
</tr>
</tbody>
</table>

### December

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Friday</td>
<td>Final date for submission of approved Dissertation/Thesis Defense Final Examination Report for Fall awarding of degrees.*</td>
</tr>
<tr>
<td>18</td>
<td>Friday</td>
<td>Fall Semester ends</td>
</tr>
<tr>
<td></td>
<td></td>
<td>*Commencement, May 2015</td>
</tr>
<tr>
<td>24/25</td>
<td>Thurs/Fri</td>
<td>Christmas Holiday</td>
</tr>
<tr>
<td>31</td>
<td>Thursday</td>
<td>New Year's Holiday</td>
</tr>
</tbody>
</table>
## SPRING SEMESTER, 2016

### JANUARY

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Friday</td>
<td>New Year's Holiday</td>
</tr>
<tr>
<td>4</td>
<td>Monday</td>
<td>Classes begin for spring semester</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fees due or within 2 weeks prior to this date</td>
</tr>
<tr>
<td>18</td>
<td>Monday</td>
<td>Martin Luther King Jr.’s birthday observed</td>
</tr>
</tbody>
</table>

### FEBRUARY

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>8</td>
<td>Monday</td>
<td>Mardi Gras Holiday</td>
</tr>
</tbody>
</table>

### MARCH

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Friday</td>
<td>Easter Holiday</td>
</tr>
<tr>
<td>28</td>
<td>Monday</td>
<td>Easter Holiday</td>
</tr>
</tbody>
</table>

### APRIL

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<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
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</thead>
<tbody>
<tr>
<td>15</td>
<td>Friday</td>
<td>Final date to submit request for Dissertation/Thesis Defense and Final Examination to graduate at Spring Commencement. Final date to circulate announcement of M.S. or Ph.D. Final Examination for Spring Commencement to Graduate Faculty</td>
</tr>
<tr>
<td>25</td>
<td>Monday</td>
<td>Registration packets due to Graduate School Office for Summer term</td>
</tr>
<tr>
<td>29</td>
<td>Friday</td>
<td>Final date to convene M.S. or Ph.D. defense to graduate at Spring Commencement</td>
</tr>
</tbody>
</table>

### MAY

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Friday</td>
<td>Graduate Research Day</td>
</tr>
<tr>
<td>13</td>
<td>Friday</td>
<td>Final date for submission of approved theses, dissertations and committee-examination reports for Spring Commencement.</td>
</tr>
<tr>
<td>27</td>
<td>Friday</td>
<td>Spring Semester ends</td>
</tr>
<tr>
<td>28</td>
<td>Saturday</td>
<td>Commencement (December and May graduates)</td>
</tr>
<tr>
<td>30</td>
<td>Monday</td>
<td>Memorial Day holiday</td>
</tr>
</tbody>
</table>

### SUMMER TERM, 2016

<table>
<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
MAY
31 Tuesday Summer term begins
Fees due or within 2 weeks prior to this date

JUNE
24 Friday Final date to submit request for Dissertation/Thesis
Defense and Final Examination to graduate at Summer
Commencement. Final date to circulate announcement
Of M.S. or Ph.D. Final Examination for Summer
Commencement to Graduate Faculty.

JULY
4 Monday Independence Day Holiday
8 Friday Final date to convene M.S. or Ph.D. defense to graduate
at Summer Commencement
22 Friday Final date for submission of approved theses and
dissertations and committee-examination reports for
Summer Commencement.
29 Friday Summer term ends
Registration packets due to Graduate Student Office
for Fall semester
31 Friday IDP forms due in Graduate School Office

AUGUST
8 Monday Fall semester begins
13 Saturday Commencement - for August graduates

Forms are available from the Department or Graduate School. Examples of these forms are found at
the back of this handbook.

NOTE: Request forms for thesis/dissertation Defense and Final Examination must be submitted to the
Graduate School at least 2 weeks prior to the defense. Public notices of the defense must also be
posted at least 2 weeks prior to the defense.
MISSON

The mission of the School of Graduate Studies at the LSU Health Sciences Center in Shreveport (LSUHSC-S) is to educate and train students in programs leading to the Master of Science and Doctor of Philosophy degrees in the biomedical sciences. Graduates of these programs are qualified for positions in academic, industrial, government and health care environments.

Graduate education in academic health centers is changing dynamically due in part to rapid advances in the basic sciences and biotechnology. The School of Graduate Studies is constantly developing and refining its programs so that graduates are trained to contribute to and compete in a changing world environment.

Goals of the School of Graduate Studies in support of its mission are:
1. To provide a strong program of instruction and research experience by providing high quality faculty, modern equipment and research facilities and a comprehensive approach to education.
2. To train biomedical scientists who can contribute to advances in health care and biotechnology.
3. To develop educators who will contribute to the graduate education of basic scientists, physicians and other health care professionals.

HISTORY

The Louisiana State University Health Sciences Center in Shreveport (LSUHSC-S) consists of the School of Graduate Studies, School of Medicine and the School of Allied Health Professions. All are part of the statewide Louisiana State University System. Prior to October 1, 2013, the university hospital was part of the LSUHSC-S. The hospital, now University Health, is a subsidiary of the Biomedical Research Foundation of Northwest Louisiana.

The School of Graduate Studies at LSUHSC-Shreveport was originally part of the LSU A&M Graduate School in Baton Rouge. When the School of Medicine in Shreveport was authorized by an act of the Louisiana Legislature in 1965 as part of the Louisiana State University Medical Center, the School of Graduate Studies continued in the LSU Medical Center campuses in Shreveport and New Orleans. The first class of graduate students on the Shreveport campus was accepted in 1974. In 1978, the first Ph.D. degree was awarded from the Shreveport campus. The LSU Medical Center was renamed the LSU Health Sciences Center in 1999, and the first Chancellor for the Shreveport campus was appointed on November 3, 2000, Dr. John McDonald. On March 25, 2004, the Louisiana Board of Regents approved Administrative Separation of the School of Graduate Studies in Shreveport from the School of Graduate Studies in New Orleans. The School of Graduate Studies in Shreveport was placed under the leadership of the Shreveport Chancellor. The first Dean of the Graduate School was appointed on April 1, 2004. The Louisiana Legislature approved the official separation of the Schools in June 2005 and Governor Blanco signed the bill in July 2005. Thus, the Louisiana State University Health Sciences Center in Shreveport is now a separate, independent institution. In June 2009, LSUHSC-S achieved independent accreditation through the Southern Association for Colleges and Schools (SACS). Reaccreditation for 10 years was achieved in December 2014.
Shreveport campus program directors:

1974-1982  R. Don Brown, Ph.D., Coordinator of Graduate Studies
1982-1984  Harry Gilleland, Ph.D., Coordinator of Graduate Studies
1984-1992  Joseph Manno, Ph.D., Assistant Dean for Graduate Studies
1992-1996  Ronald Korthuis, Ph.D., Assistant Dean for Graduate Studies
1996-1999  Robert Chervenak, Ph.D., Assistant Dean for Graduate Studies
1999-2000  Leonard Seelig, Ph.D., Assistant Dean for Graduate Studies
2000-2004  Sandra C. Roerig, Ph.D., Assistant Dean for Graduate Studies
2004-present Sandra C. Roerig, Ph.D., Dean, Graduate Studies and Research

The School of Graduate Studies is comprised of five Basic Science Departments; the Department of Biochemistry and Molecular Biology, the Department of Cellular Biology and Anatomy, the Department of Microbiology and Immunology, the Department of Molecular and Cellular Physiology and the Department of Pharmacology, Toxicology and Neuroscience. Each department offers the Doctor of Philosophy (Ph.D.) degree in that discipline.

From the beginning of the School, the Masters of Science (M.S.) degree was also offered from each department. Beginning on July 1, 2011, the Louisiana Board of Regents approved combining these five degree programs into a single M.S. degree program in Biomedical Sciences. Students in this program are recruited into one department and complete the requirements in that department. They are awarded the M.S. degree in Biomedical Sciences. Within the Department of Cellular Biology and Anatomy, a M.S. clinical track for training students as instructors of human anatomy is also available.

Offices and laboratories of the Graduate Faculty were originally established at the VA Medical Center and later moved to the new Medical School building (Building B) in 1976. The Biomedical Research Institute (BRI) building, dedicated in February 1994, currently houses many Graduate Faculty offices and laboratories as well as the Research Core Facility. The BRI also houses some staff of the Biomedical Research Foundation of Northwest Louisiana (BRF) who operate its Positron Emission Tomography (PET) facility.

**LOCATION** The Office for the School of Graduate Studies is located on the first floor of the Medical School Building (B), Room 1-210.

Ms. Jessica Cote, Graduate Studies Coordinator is available to answer questions about curriculum, recruiting and other Graduate School issues as well as the Organization of Postdoctoral Fellows. You may contact her at:

- 318-675-7674 (phone)
- 318-675-4343 (fax)
- jcote@lsuhsc.edu

**NEWSLETTER** The School of Graduate Studies publishes a newsletter "The Cutting Edge", three times a year. Items of interest to graduate students such as availability of travel funds, information on Graduate Research Day, graduating students, etc. are included. Contributions and ideas on articles for "The Cutting Edge" are always welcome.
GRADUATE SCHOOL SEMINAR SERIES  A series of six seminars presented by well-known scientists from outside the institution is scheduled throughout an academic year. Speakers are chosen who will present seminars of broad interest to faculty and students in all the Departments. The School of Graduate Studies sponsors one seminar, and each of the five Basic Science Departments sponsor the others. The Graduate Students are responsible for inviting the speaker, making travel and housing arrangements for the speaker, organizing the schedule of the speaker and serving as the LSUHSC-S contact person for that speaker. A reception following the seminar is held to allow interaction of as many faculty and students as possible with the guest speaker.

GRADUATE RESEARCH DAY  Graduate Research Day is an annual event held on the first Friday in May. Activities include research talks by senior students and a postdoctoral fellow and poster presentations by students and postdoctoral fellows. There is a competition for best poster in several categories and cash prizes are given to the winners. The highlight of the day is a keynote speaker (chosen by the students) who addresses potential career opportunities for the graduates. Following the scientific sessions, a Louisiana crawfish boil is held at the Student Union. The event is organized and produced by the graduate students, led by the members of the Graduate Student Council.

STUDENT EXECUTIVE COUNCIL  Both graduate students and medical students are members of the Executive Council on the LSUHSC-Shreveport campus. This council meets to discuss matters of concern to the students and to organize and plan various social events. The Executive Council is responsible for upkeep of the student lounge and exercise room, and the Student Union. The Council receives its operating funds from that portion of the university fees designated for student activities. The members of the council are elected for one year terms by students in their respective schools and serves as a liaison to those students. The two current representatives of the School of Graduate Studies are J. Winny Yun (Department of Molecular and Cellular Physiology) and Corie Robinson (Department of Pharmacology, Toxicology and Neuroscience).

The office of the Executive Council, which is in the Office of Student Activities, is located on the first floor in "C" Building directly past the library in room 1-402. Ms. Laura Mackowiak is the contact person. She is in the office from 8:30 a.m. – 5:00 p.m., Monday - Friday. Executive Council meetings are held on a designated day once a month. Students are encouraged to become involved with the council and all suggestions and recommendations are welcomed. Remember--this is the student Executive Council.

STUDENT HONOR COUNCIL  Both graduate students and medical students serve on the Honor Council. Some of the functions of the Honor Council are to make the students aware of the school's policies on cheating; to meet periodically to assure that students are complying with the regulations; to recommend to the faculty ways to eliminate conditions that are conducive to violations; and to help promote positive attitudes among students concerning their professional behavior. The Honor Council chairman is chosen in a school-wide election. The members of the council must be respected by their classmates and maintain strict confidentiality in all matters pertaining to violations. The members of the council are elected by students in their respective schools. The two graduate students currently serving on this Council are William Songock (Department of Microbiology and Immunology) and Aimee Vozenilek (Department of Microbiology and Immunology).

LIBRARY COMMITTEE  The institutional Library Committee meets on a regular basis to address issues relating to selection of books and journals, computer resources and other library functions. Two
graduate students serve on this committee, Alexandra Finney (Department of Cellular Biology and Anatomy) and Randa Eshaq (Department of Molecular and Cellular Physiology).

**PARKING COMMITTEE** The institutional Parking Committee meets monthly to address issues related to campus parking of faculty, staff and students. Joseph Guidry (Department of Microbiology and Immunology) represents the Graduate School on this committee.

**TRAVEL AWARDS** Full-time students enrolled in the Ph.D. program are eligible to receive travel awards to attend scientific meetings. Each student is eligible to receive one award per academic year. Prior to making travel arrangements, the student must submit a completed application form (available from the Office of the School of Graduate Studies or the Graduate School web site), a signed Prior Approval Request for Travel form (available from the LSUHSC-S web site) and a copy of the abstract of the presentation (s)he will be making at the meeting. The student must be the first author and presenter of the abstract. The Graduate School will match an amount up to $500 for a student trip. Additional funds must be provided from other sources and the sources must be verified on the application form. Only students who attend and participate in Graduate Research Day activities are eligible for travel awards.

For official in-state business travel by automobile of less than 99 miles round trip, a personal vehicle may be used, with mileage reimbursed at $ 0.51 per mile. For automobile travel greater than 99 miles round trip, arrangements must be made to rent a car through Enterprise Rent-A-Car's State Motor Pool Rental Contract. All commercial airline tickets must be purchased through Short's Travel Management (phone 888-846-6810; fax 319-433-0847; www.shortstravel.com/la). All travel policies are available on the LSUHSC-S website.

After returning from the meeting, a completed Travel Expense Voucher form (available on the LSUHSC-S web site) must be returned to the individual Departmental Offices within 10 working days.

**PURCHASING** On occasion, graduate students may need to purchase items for their research projects or for student activities from local vendors. Such items may be purchased using the procurement card for the School of Graduate Studies. The student should consult with staff in the Office of Graduate Studies to obtain use of this card.
ADMISSION AND REGULATIONS

Admission Requirements

Unconditional Admission

The requirements for unconditional admission to the School of Graduate Studies are:
1) A baccalaureate degree from a college or university approved by a regional accrediting agency
2) grade point average of at least 2.5 for undergraduate work, and 3.0 grade point average for graduate work, on a 4 point scale and based upon all work for which a grade is given
3) satisfactory scores on the Graduate Record Examination, the exam must be taken within five years of application to the program
4) satisfactory standing at the most recent educational institution attended
5) acceptance in a Departmental program. It should be noted that individual Departments may establish higher requirements than the minimal standards of the School of Graduate Studies so that a student meeting minimal School requirements may not be adequately prepared to enter graduate study in a particular Program.

In addition, international students must present acceptable scores on the Test of English as a Foreign Language (TOEFL) or the International English Language Testing System (IELTS) examination before they will be accepted as graduate students. These examinations are offered several times a year throughout the world.

Acceptance is contingent upon recommendation by one of the Departments offering graduate instruction leading to advanced degrees and co-current by Dean.

The School of Graduate Studies is dedicated to developing a culture that fosters the recruitment, nurturing and retention of a diverse student body that is reflective of our larger community. Thus, students of all racial and ethnic backgrounds are encouraged to apply to our programs. Applications are considered without regard to race, color, religion, sex, national origin, political affiliation, sexual orientation, gender identity, marital status, veterans status, disability, genetic information, age, membership in an employee organization, or other non-merit factor.

Graduate students, who apply for admission to the LSUHSC School of Medicine, or any other LSU professional school, shall not be enrolled in the professional school until they have completed the graduate degree toward which they are working.

Provisional Admission: Applicants who appear to be admissible but who are unable, for good reason, to supply the required credentials prior to the stated deadline may request provisional admission. In such cases complete credentials must be received not later than sixty days after the first day of classes (forty five days in the summer term).

Probationary Admission: Applicants who fail to meet all qualifications but who are never-the-less judged by the Departments concerned and by the Dean to show promise for successful graduate work may be considered for probationary admission on the merits of their individual cases. Such applicants will be required to meet specific Departmental or Graduate School requirements prior to admission.
Regulations

Experiential Credit: The School of Graduate Studies does not award credit or advanced placement for any previous work experience or professional work certificate obtained by a student prior to admission. All required course work for each individual program must be completed. At the recommendation of a Department, and approval by the Dean of the Graduate School, some coursework may be exempted for students who enter a Ph.D. program after having completed an advanced degree program such as M.S., M.D. or D.V.M.

Registration: Dates for registration are listed in the 2015-2016 Schedule. Late registration is permitted only under unusual circumstances and a late fee may be required. Students must be prepared to begin their studies at the beginning of the semester in which they first register.

A student is considered full time when registered for 9 credit hours in the fall and spring semesters and 6 credit hours in the summer term. It is sometimes necessary for a student to carry more than 15 hours of credit per semester in the first year of graduate study. Permission to exceed the usual 15 hour credit limit may be granted by the Dean. All students engaged in research should register for the appropriate research category in the department of residence as required by the department. Students should continue to register for research as appropriate during the majority of their enrollment time.

Special Status Students: An applicant may seek to enroll in Graduate School courses as a non-matriculating Special Status student. The applicant must have earned a baccalaureate degree from an accredited college or university. An official transcript must be sent from the college or university to the School of Graduate Studies. A minimum undergraduate GPA of 2.5 and 3.0 for graduate work is required. The applicant must submit a letter signed by the director of the course in which the applicant wishes to enroll, to the School of Graduate Studies. The letter must state the course number, title and number of credit hours, as listed in the LSUHSC-S catalog. The applicant letter must arrive in the Graduate School Dean's office for approval at least two weeks before registration. If approved, the applicant must fill out an application form at least one week before registration. This procedure applies for each term in which the student wishes to enroll in a course. At registration, the student will pay the registration fees according to the Graduate School fee schedule. A maximum of 12 credit hours of graduate credit earned as a Special Status student will be considered for meeting a graduate degree requirement in the School of Graduate Studies. Credit hours earned as a Special Status student may not be used to meet degree requirements in the School of Medicine or the School of Allied Health Professions.

Reapplication: Students once registered in the School of Graduate Studies who wish to resume work after an absence of more than one semester will be required to submit an application for re-admission at least ten days before registration. Supplementary transcripts must be submitted if any work has been performed at another institution during the interim. Exceptions to this requirement must be by successful petition of the Dean.

Adding and Deleting Courses: For courses of 1 credit hour, the final date for adding the course is 5 class days after the beginning of the course. The final date for withdrawing from the course and receiving a grade of "W" is 5 class days from the last day of the course. If withdrawal is requested with less than 5 days remaining in the class, a grade of "F" will be assigned. For all other courses, 10 class days will be allowed as described above. A form for adding or deleting a course is available on the web site of the Registrar (under Add/Drop form for AHP and GRSS). The form must be completed
and submitted to the Office of the Registrar. A copy of the form must be submitted to the Office of Graduate Studies.

Grade Requirements: To receive a graduate degree a student must maintain an average grade of at least a B (3.0) on all work taken as a graduate student. Credits received in thesis or dissertation research, seminar, journal club or other “S/U” courses are not used in computing the grade point average. A summer term is counted as a semester. Students in serious scholastic difficulties may be dropped from the rolls at the end of any semester if the Department and Dean feel that the student is not qualified to continue.

Academic Probation: A student will be placed on academic probation if his/her grade point average (GPA) drops below a 3.0 in any semester. The student will then be allowed one calendar year (three consecutive semesters) to raise the GPA to 3.0 or above. The student will be dropped from the rolls of the School of Graduate Studies if at least a 3.0 GPA is not achieved in this time period.

Grading System: In the School of Graduate Studies a grade of A has the value of 4 quality points per semester hour. A grade of B has the value of 3 quality points per semester hour. C has the value of 2 quality points per semester hour and in some Departments a course with a C grade or less may not be accepted for credit toward a degree and must be remediated. D has one quality point value. F grades carry no quality points; “I” grades indicate unfinished work. Consistent grades below A in the major field may be considered evidence of unsatisfactory performance by some Departments.

No regular letter grades will be given for research, journal club or seminar courses, but they will be allowed for special topics or methods courses. Methods courses given for letter grades must be approved in advance by the Graduate Advisory Council and by the Dean.

For research, seminar or journal club courses, grades of "Satisfactory" will be indicated by "S" and "Unsatisfactory" by "U".

Incomplete Grades: Work which is of passing grade but which, because of circumstances beyond the student’s control is not complete, may be marked “I”, incomplete. An “I” grade is given only upon receipt by the faculty of an appropriate excuse. If an excuse is not received, the faculty is to consider that the incomplete work is of failing quality and an F grade is to be given. It is the responsibility of the student to initiate the excuse.

A grade of “I” will be converted to F unless it is removed prior to registration for the semester following the semester in which the “I” was given. In extraordinary cases, such as a student going into military service, the Dean may authorize the “I” grade to become permanent, or may authorize an extension of time for removing the grade.

Examination Only status: Students who have successfully completed all the degree requirements except for the final dissertation/thesis defense and submission of the final dissertation/thesis, may register “for examination only” (X999). A student is only eligible for this status if they will be defending their dissertation/thesis in the semester in which they have registered. Exam only status students are enrolled for zero credit hours and their enrollment status is reported as less than half time. Students will be assessed a graduation fee. Students registered for Exam Only are not eligible for financial aid.
Diploma Only status – A student is only eligible for this status if they have successfully defended their dissertation/thesis, resolved any “I” Incomplete grades in their final semester, and met all degree requirements prior to the last day to add classes (14th day of classes during a regular semester; 7th day of classes during a Summer term) for the semester of graduation. Diploma Only status students are enrolled for zero hours and their enrollment status is reported as less than half time. Students may be assessed a graduation fee. Students registered for Diploma Only are not eligible for financial aid.

Satisfactory-Unsatisfactory Grades in Graded Courses: A student, at the discretion of the student’s Department, may take up to two courses outside of the major Department, which are normally evaluated by letter grade A-F, for a grade of "S" or "U". If an "S" grade is earned (Equivalent to A, B or C), credit hours will be given for the value of the course. If a "U" is incurred (D-F), credit hours will not be given for the value of the course. In neither case will the grade affect the grade point average of the student.

The nature of the arrangement must be recorded at the time of registration. If a student intends to register for a course on a "satisfactory-unsatisfactory" basis, he/she must fill out the registration form in the usual manner except that the letters "S-U" should be inserted after the course number.

Withdrawal Grades: For courses of one semester duration, students who withdraw from these courses after the second week (10 class days) will receive a grade of “W”. Withdrawal within two weeks of the course termination will result in a grade of F. For courses of less than one semester duration, students who withdraw from these courses after the first week (5 class days) will receive a grade of “W”. Withdrawal within one week (5 class days) of the course termination will result in a grade of F.

Course withdrawal forms are available on the web site of the Registrar and must be completed in order to withdraw from a course (see Adding and Deleting a Course, above). If a student discontinues a course without completing the required withdrawal forms, a grade of F will be assigned for that course.

Statement of Satisfactory Academic Progress: A student who is permitted continuous enrollment is considered making satisfactory progress. The Departments and the Dean review the qualitative and quantitative academic progress of each student. A student may be permitted to remediate upon the recommendation of the student’s Department and concurrence by the Dean. Such a student is considered to be making satisfactory academic progress.

Time Limit for Earning Degrees: The School of Graduate Studies requires that all work towards a Ph.D. degree be completed in not more than eight calendar years and all work towards a M.S. degree must be completed in not more than four years. A student who changes from the Ph.D. program to the M.S. program must complete his/her Master’s Degree within four years or one-year after the switch is made from the Ph.D. program, whichever is longer. Any requests for extension of this policy are subject to approval by the student's Graduate Research Committee and the Dean.

Degrees for Full Time Faculty and Staff: The School of Graduate Studies will not award graduate degrees to full time faculty of the Health Sciences Center above the rank of Instructor or to other employees of equivalent status.

Full Time Employees: LSUHSC-S employees may not register for more than six hours of credit per semester and 3 hours in the summer term. No full time employee will be permitted to register without
written approval of the employee's immediate supervisor and Department Head. The employee must deliver the letter to the School of Graduate Studies at least two weeks before registration. The employee must also complete a Graduate School application form. At registration the employee will pay for the course according to the Health Sciences Center Fee Schedule. Employees may qualify for tuition and fee exemption. Criteria include (1) have at least one year of 100% service prior to class registration, (2) be a full-time non-academic or other academic employee (faculty are excluded) (3) tuition exemption is limited to 6 credit hour per semester, 3 credit hours in the summer term (4) only 3 hours per week of educational leave may be taken during work time. Any additional time off must be recorded as Annual Leave of Leave Without Pay (5) maintenance in good academic standing is required for continuing use of the program. If approval is granted, the student must bring the original request form and two copies to the Office of Graduate Studies on or before the registration date for the relevant semester.

Full-time employees who are accepted into the M.S. program as part-time students may qualify for tuition exemption as described above. After being accepted into the program, the student may register using the student portal system.

All employees must comply with LSUHSC-S Student Health requirements and also maintain health insurance. A Course Schedule Form must be completed, signed by employee's supervisor and submitted at Registration.

Course Audits: Enrolled students may audit courses without credit. Persons not enrolled will not be permitted to audit.

Graduate Student Leave

A. Annual leave. All full-time graduate students are entitled to 10 working days of annual leave during which the stipend will be continued. Unused leave does not accumulate (it does not carry over to the next year). The academic year starts on July 1 and ends on July 30 of the following year. The student is expected to prepare written requests indicating the desired dates for annual leave. The request for annual leave must be submitted at least two weeks prior to the desired dates for annual leave to the student's Dissertation Advisor (or Departmental Program Director for those students who have not yet selected a Dissertation Advisor) and Department Head. Maternity/paternity leave is considered annual leave so that leave beyond 10 days in one academic year will be considered leave without pay.

B. Leave of Absence. Students wishing to take a temporary break in enrollment, for reasons other than academic, must apply for a leave of absence from the institution. Leave of absence is defined as any time period longer than the 10 days that students are allowed for annual leave. Leave of absence may be granted for extended illness, disability or personal reasons. Stipend support for the student may not be extended during the leave without pay period. The student is expected to prepare a written request that fully outlines the reason for the request and indicates the dates on which the leave of absence will begin and end. As much notice as possible should be given to the student's Dissertation Advisor (or Departmental Program Director for those students who have not yet selected a Dissertation Advisor), Department Head and Dean of Graduate Studies prior to the beginning of the leave, and at least two weeks written notice prior to returning to school. The Graduate School office is required to notify the Office of the Registrar whenever a student requests a leave of absence.
C. Funeral leave. Students are permitted 2 days of funeral leave to attend services or burial rites for immediate family members (father, mother, sibling, spouse, child, in-laws, grandparents, grandchild, and step-father, step-mother, and step-siblings). The student should submit a leave request indicating the desired dates for funeral leave to the Dissertation Advisor (or Departmental Graduate Program Director for those students who have not yet selected a Dissertation Advisor) and the Department Head. If not requested prior to the absence, appropriate forms should be completed immediately after funeral leave has been taken.

D. Pregnancy or other medical condition leave. A full-time graduate student who has been in the program for at least one year is eligible for FMLA (Family Medical Leave Act) leave for pregnancy or other medical condition. FMLA leave is for up to 12 weeks and needs a physician's release to come back to work. An additional 4 weeks can also be allowed if there are complications. If the father of a newborn works for LSUHSC-S, the father and mother are limited to sharing a combined total of 12 weeks. Because circumstances may require that FMLA leave begin before the actual date of birth of a child, FMLA paperwork should be completed as soon as pregnancy is diagnosed and returned to Human Resources (HR). HR should be notified when the physician certifies that the student is unable to continue working, and given a medical release when the student returns to work after the birth of the baby. The student's (both mother and father) stipend will be paid for any available unused annual leave of up to 10 days during the FMLA period.

For full-time students who have been in the program for less than one year, 6 weeks is allowed for pregnancy leave. This leave is not covered by FMLA.

E. In exceptional cases, extended leave with pay may be granted. Approval of the Dissertation Advisor (or Departmental Program Director for those students who have not yet selected a Dissertation Advisor), Department Head and Dean of Graduate Studies must be obtained in such cases. All hours of annual leave must be used before a student will be granted a request for extended illness, disability or personal leave with pay.

Transfer between Departments: Graduate students wishing to transfer from the graduate program in one Department (Department A) to that offered in another (Department B) must:

1. Resign from Department A by directing letters of resignation to the Department Head and Dean of Graduate Studies.
2. Submit an application for admission into Department B. This application will be placed into consideration with the pool of applicants in Department B. The previous acceptance into Department A does not guarantee admission into Department B.

Only one transfer per student is permitted.

Transfer from the Ph.D. program into the M.S. program: Students enrolled in a Ph.D. program may choose to transfer to the M.S. in Biomedical Science program. The reason for the transfer may be (1) personal, (2) based on Departmental evaluation/recommendation, or (3) the student was unsuccessful in passing the preliminary/qualifying exam process. In any case, the student must submit to the Graduate School Office (1) a completed application form for the M.S. program (forms available in the Graduate School Office), and (2) a letter of acceptance into the M.S. program from the Department, signed by the Department Head.
Requirements for Graduation: Satisfactory completion of individual program requirements and all requirements as noted in both the "Requirements for the Master of Science Degree" or the "Requirements for the Doctor of Philosophy Degree" must be documented.

The student is expected to have satisfactorily met all financial obligations to the LSU Health Sciences Center and the LSU System at least ten days prior to graduation.

Individual Development Plan (IDP): Each student is required to complete and submit an IDP form for each year of enrollment in the program. The IDP policy is described later in this handbook and is meant to assist students in achieving their career goals. The IDP form includes an annual report of the students’ activities as well as defined plans for the following year. The signed, completed forms must be submitted to the Office of Graduate Studies by July 31 of each year, to include information from the previous academic year (July 1 through June 30).

Financial Support

Stipends: Students enrolled full-time in the Ph.D. program are eligible for stipend support. Students in the Ph.D. program who transfer to the M.S. program are eligible for stipend support for up to six months following enrollment in the M.S. program, provided that the funding for the support is derived from either the student’s mentor’s account or departmental accounts. These stipends range from $24,000 to $26,000 per year, depending on the Department and the status of the individual student. For example, in some Departments, the stipend is increased $1,000 when the student has passed the qualifying exam. Students who have passed their qualifying examinations are encouraged to apply for pre-doctoral fellowship awards through external granting agencies (see below). Maintenance of eligibility for stipend support is determined on an annual basis by the Departmental evaluation of the individual student's performance during the previous academic year.

Other Support - Extramural: Students are encouraged to apply to granting agencies such as the National Science Foundation (NSF), National Institutes of Health (NIH), American Heart Association, Department of Defense, Pharmaceutical Research and Manufacturers of America Foundation, Howard Hughes Medical Institute etc., to obtain individual pre-doctoral fellowships. Applicants should consult the Department Graduate Program Director and the Office of Sponsored Programs and Technology Transfer regarding the possibilities. Students are encouraged to submit their dissertation proposals to NIH as individual National Research Service Awards (NRSA). Students who receive competitive fellowships that pay for their stipend are eligible to receive a yearly stipend up to $28,000, with any supplement to be provided by the Department or their advisor.

Other Support - Intramural: Competitive pre-doctoral fellowships are offered through the LSUHSC-S intramural grants program. These fellowships are available to Ph.D. students who have successfully passed their preliminary and qualifying exams. Students may apply for one of three different fellowship awards. The Malcolm Feist Pre-doctoral Awards are provided for students who are involved in cardiovascular research. The Carroll Feist Pre-doctoral Awards are available for students whose dissertation project is an area of cancer research. The Ike Muslow Pre-doctoral Fellowships are available to students involved in areas of research that are not cardiovascular or cancer related. These fellowships are $28,000 per year, initially awarded for one year, and renewable for up to two additional years, depending on the progress of the project. Additional information is available on the Office of Research website. Applications are accepted for both April and October submission deadlines as described on the Office of Research website.
**Expectations of Support:** Full-time students who are receiving stipends or fellowships are expected to devote their full efforts toward their academic studies and research projects. These students are not eligible to receive additional funds from employment at LSUHSC-S, and they should not seek outside jobs and/or part-time employment. Students in financial difficulty should discuss this matter with their mentor, the Department Graduate Program Director, the Head of the Department, the Dean of the School of Graduate Studies and/or the Office of Student Financial Aid. Temporary loans are available through the School of Graduate Studies (see below).

**Tuition Waivers:** Students enrolled full-time in the Ph.D. and M.S. program are eligible for full tuition and non-resident fee waivers. Maintenance of eligibility for these waivers is determined on an annual basis by the Departmental evaluation of the individual student's performance during the previous academic year. Students enrolled in Examination Only or Diploma Only (see above, under Regulations) are enrolled for zero hours and the tuition of $100 is waived. Part-time students enrolled in the M.S. program may be eligible for tuition waiver depending on availability of funds. Priority for tuition waivers is as follows: Ph.D. students, followed by full-time M.S. students, followed by part-time M.S. students, depending on availability of funds.

**Student Fees:** Student fees are determined each year by a vote of the LSU Board of Supervisors and consist of the student union, health, yearbook, activity and operational fees. These fees must be paid by each student including those who have tuition waivers. Fee amounts are based on the number of hours for which a student is registered and must be paid in full each semester/term. Students will receive an invoice by e-mail from the Bursar. Fees may be paid any time after the invoice is received up until the first day of class. Late fees may be charged after the first day of class. Fees must be paid to the Bursar.

There is a one-time graduation fee for graduating students. This fee is charged for the semester in which the student intends to complete the degree requirements by the deadlines described in this handbook. When registering for the semester that the student pays the Graduation Fee, (s)he also pays the required student fees. Graduation fees are $107 for the Ph.D. candidate and $32 for the M.S. candidate. This fee pays for the diploma, dissertation/thesis binding (2 copies) and a microfilming fee (for Ph.D. students only). If the student does not graduate at the end of the semester in which (s)he pays the Graduation Fee, (s)he is charged a $5 diploma reorder fee for each following semester that (s)he is enrolled past the planned graduation semester.

**REQUIREMENTS FOR THE MASTER OF SCIENCE DEGREE IN BIOMEDICAL SCIENCE**
The Master of Science (M.S.) degree in Biomedical Science is offered in the five basic science departments. Application may be made to the School of Graduate Studies or to one of the five basic science departments.

Residence (time enrolled as a full-time student) - Both full-time and part-time options are available. Full-Time: One academic year, two semesters, or four summer terms represents the minimum requirement for full-time students. Two years’ residence represents a more realistic average. Part-Time: Students who wish to pursue the M.S. degree on a part-time basis must submit a written request, signed by the Department Head and the Department Graduate Program Director, to the Graduate School Dean for approval. This request must be submitted each semester in which the student wishes to enroll and must state the number of credit hours in which he/she will enroll.

Semester Hours - The minimum requirement is 30 semester hours of graduate work, at least 17 of those hours must be taken in courses that require a letter grade for evaluation and not more than two credit hours of seminar credit. At least six research hours must be completed. Departmental requirements may exceed these minimal requirements.

Transfer of Credit - Candidates for the Master of Science degree may receive up to five hours of transfer credit from another graduate level accredited institution at the discretion of the Department involved, providing the students have completed courses which are comparable to LSUHSC-S School of Graduate Studies’ courses, and satisfy the subject matter requirements. No transfer credit is permitted for course work receiving a grade below B. Written notification clearly listing the courses to be transferred must be sent to the Dean who will notify the Registrar. Credits may also be transferred to the M.S. program from the Ph.D. program for students who desire to switch from the Ph.D. program at LSUHSC-S to the M.S. program. There is no limit on the number of transfer credits from the Ph.D. program at LSUHSC-S to the M.S. program at LSUHSC-S.

Candidacy - A student becomes a candidate when he/she has completed 12 semester hours of work with a B average and has received Departmental approval.

Thesis Instructions - Instructions on preparation of the thesis may be obtained from the School of Graduate Studies office. The format of the thesis should follow the rules formulated in the current edition of the CBE Style Manual: A Guide for Authors, Editors and Publishers in the Biological Sciences. Detailed instructions are available on the website. For the planned graduation date, the student should check the school calendar for the final date for submission of the thesis to the School of Graduate Studies. Final approval of the thesis rests with a committee of not less than three graduate faculty members, one of whom must be from a Department other than the Student's Department, nominated by the Head of the Department, and appointed by the Dean. The Dean may serve as a member or may appoint members to the Committee.

Thesis Defense - When the thesis research is complete the candidate will be required write and to successfully defend the thesis in an oral exam. The student must be enrolled in the School of Graduate Studies in the semester in which the oral defense is scheduled. Application for the oral thesis defense must be made at least two weeks prior to the date of the defense. This application form is available from the Office of Graduate Studies. The completed form, along with an abstract of the thesis must be received by the Office of Graduate Studies two weeks prior to the thesis defense date. Copies of the thesis must also be circulated to the examining committee at that time. Public announcement of the thesis defense must be made two weeks prior to the oral defense. After the oral defense, the
Committee votes by secret ballot whether or not to pass the examination there may be no more than one negative vote. The Major Professor must be present on site for the thesis defense.

Degree Requirements - The signed Final Examination Report form, available in the Office of Graduate Studies, must be submitted to the Office of Graduate Studies, along with final copies of the thesis for binding. Submission of these documents, along with the completion of the course requirements and maintenance of at least a 3.0 GPA constitutes fulfillment of the degree requirements. Deadlines for completion of these requirements are scheduled in each semester, fall, spring and summer (see Schedule pages 7-9).
The Doctor of Philosophy (Ph.D.) degree is the highest degree offered by universities. It is conferred only for work of distinction in which the student displays original scholarship.

Residence (time enrolled as a full-time student) - Three years (9 semesters) of residence in the program are required, although in most programs more time is needed. Exceptions may be made by petition to the Graduate Dean and the Graduate Advisory Council. One year (three consecutive semesters/term) must be taken in residence at LSUHSC-S following completion of the preliminary examination.

Course Requirements - Specific course requirements are dependent upon individual Departmental policy. However, in general, a minimum of 32 credit hours is required and at least 20 of those hours must be taken in courses that require a letter grade for evaluation. Some of the credit may be earned in one or more minor fields. No more than fifteen credits may be counted for research and dissertation and no more than four credits for seminar, even though both may be carried throughout the program. Departmental requirements may exceed these minimal requirements.

Transfer of Credit - Candidates for the Ph.D. degree may receive up to fifteen hours of transfer credit from another graduate level accredited institution at the discretion of the Department (approval of the Department Head) involved, providing the students have completed courses that are comparable to LSUHSC-S School of Graduate Studies’ courses, and satisfy the subject matter requirements. Written notification clearly listing the courses to be transferred must be sent to the Dean who will notify the Registrar. Credits earned in the M.S. program at LSUHSC-S (up to fifteen hours) may be transferred to the Ph.D. program at LSUHSC-S. No transfer credit is permitted for course work receiving a grade below B and transfer of the credit does not reduce the residency requirement.

Qualifying Process - Each Department will be responsible for the qualifying process and will develop appropriate policies that will be on file in the Dean’s Office. These qualifying processes are described in detail in the Departmental policies.

Preliminary Examination — The applicant becomes eligible for the Preliminary Examination at a time chosen by the Department but not less than one academic year (three consecutive semesters) before graduation. The student and his/her major professor, with the approval of the Department Head and the Dean, will recommend a research committee and petition the Dean to appoint the committee and allow the student to schedule the examination.

The research committee will ordinarily consist of the student's major professor and at least four other Graduate Faculty members representing major and minor disciplines. At least one member must be from another Department and one member could be from outside the Medical Center. Substitution or addition of committee members may be made by the Dean after consultation with the major professor and Department Head, but continuity of membership is sought to provide consistent guidance of the student through the program. This examination is the most thorough in the doctorate program. It should require the candidate to demonstrate competence in a broad segment of the major and minor fields. Although the examination may be either oral or written or both, a written section is strongly recommended. If there is no more than one negative ballot out of a minimum of five, the student becomes a "candidate for the Ph.D. degree" after the Dean has been notified by the student's major professor and Department Head of successful completion of the preliminary examination. A form for this notification is provided by the Graduate School.
Grant proposal application - Each Ph.D. student is required to write a grant application in National Institutes of Health format. This proposal generally contains the elements of the dissertation project. The student may also be required to provide an oral defense of the application to his/her research advisory committee. Successful defense of the application may serve as completion of the preliminary examination and advance the student to Ph.D. candidacy.

Dissertation - The dissertation must be a significant contribution to the field, suitable for publication in a referred journal of international repute. Instructions on the preparation of the dissertation may be obtained from the School of Graduate Studies. The format of the dissertation should follow the rules formulated in the current edition of the CBE Style Manual: A Guide for Authors, Editors and Publishers in the Biological Sciences. Detailed instructions are available on the web site. For the planned graduation date, the student should check the school calendar for the final date for submission of the dissertation to the School of Graduate Studies.

Dissertation Defense — One year (three consecutive semesters) following the preliminary examination, the student is eligible to take this final examination, if the dissertation is complete to the satisfaction of the Research Committee. The student must be enrolled in the School of Graduate Studies in the semester in which the defense is scheduled. The Defense may be preceded by an open seminar of the student's dissertation research. The student must petition the Dean for permission to take the examination at least 2 weeks prior to the Defense date. A form for this petition is available from the Office of Graduate Studies. The examining committee is made up of no less than 5 graduate faculty members, one of whom must be from a Department other than the Student's Department, nominated by the Major Professor, Head of the Department and appointed by the Dean. The Dean may serve as a member or may appoint members to the Committee. Traditionally, this examination is a test of the student's intimate knowledge of the area of the field in which the student is working. However, at the discretion of the Committee or the Dean, the examination may include questions from the major or minor fields in general. The Major Professor must be present on site for the dissertation defense. Voting is by secret ballot, and to pass the examination there may be no more than one negative vote.

Certification - If not more than one member of the examining committee dissents and if the dissertation is accepted, the candidate will be certified to the Graduate Faculty and Chancellor as having met all requirements for the degree of doctor of philosophy.

Degree Requirements - The signed Final Examination Report form (available in the Office of Graduate Studies) must be submitted to the Office of Graduate Studies, along with final copies of the dissertation for binding. Submission of these documents, along with the completion of the course requirements, passing the qualifying process/preliminary examination and maintenance of at least a 3.0 GPA constitutes fulfillment of the degree requirements. Deadlines for completion of these requirements are scheduled in each semester, fall, spring and summer (see Schedule pages 7-9).
PURPOSE
The program promotes the education of physician scientists by allowing students to be enrolled in the School of Graduate Studies and the School of Medicine in Shreveport in a more efficient and productive sequence than could be otherwise accomplished. The program is administrative in nature and does not alter the degree requirements, curricula or courses of either school.

ADMINISTRATION
This program will be administered by the School of Graduate Studies and the School of Medicine. The M.D./Ph.D. Supervisory Committee consisting of administrators and faculty from both schools is responsible for approving the admission of applicants admitted to the program and for facilitating the progress of students through the program including probation and suspension.

M.D./Ph.D. Supervisory Committee

Administrators:
Sandra C. Roerig, Ph.D., Dean, School of Graduate Studies, Associate Dean for Research
Jane Eggerstedt, M.D., Associate Dean for Academic Affairs, School of Medicine.

Appointed:
D. Neil Granger, Ph.D., Head, Department of Molecular and Cellular Physiology appointed by the Dean of the School of Graduate Studies.
Nicholas Goeders, Ph.D., Head, Department of Pharmacology, Toxicology and Neuroscience, appointed by the Dean of the School of Graduate Studies.
Steven A. Conrad, M.D., Ph.D., Department of Emergency Medicine, appointed by the Dean of the School of Medicine.
John Vanchiere, M.D., Ph.D., Department of Pediatrics, appointed by the Dean of the School of Medicine.

Ex officio:
F. Scott Kennedy, Ph.D., Assistant Dean for Admissions, School of Medicine
Mark Platt, Ph.D., Assistant Dean for Student Affairs, School of Medicine
Kimberly Carmen, Registrar, LSUHSC-Shreveport

The term of appointed members is indefinite. All members except ex officio members are voting members of the committee. The committee will meet at least semi-annually to review and approve applications, to monitor and facilitate student progress through the program and to resolve conflicts. Special meetings may be called at the request of the Dean of the School of Graduate Studies or the Dean of the School of Medicine or by request of any two members with the approval of a majority of the members. Minutes of all meetings will be recorded and maintained by the Registrar, LSUHSC-Shreveport. All meetings will be conducted in accordance with Robert's Rules of Order (Revised).

The committee will establish necessary procedures.

APPLICATION
Students who have not matriculated in either school should make separate applications to the School of Graduate Studies, through one of the Basic Science Departments, to the School of Medicine and to the M.D./Ph.D. program through the Supervisory Committee. Students must be accepted by each of the
schools and approved by the M.D./Ph.D. Program Supervisory Committee. Students who are attending the School of Medicine and would like to apply for admission to the M.D./Ph.D program must do so no later than the first half of the second year of Medical School.

Special circumstances and exceptions may be considered by the M.D./Ph.D. Supervisory Committee. Exceptions may be implemented if approved by the committee and the Deans of the respective schools.

Unconditional acceptance into the program requires a cumulative grade point average (GPA) of at least 3.5 (A = 4.0) for all completed undergraduate or postgraduate coursework, a score of at least 28 on the Medical College Admission Test (MCAT) and a combined verbal and quantitative score of at least 305 on the Graduate Record Examination (GRE).

MATRICULATION
Student records are maintained in both the School of Graduate Studies and the School of Medicine. Copies of records from both schools are maintained in each school.

Registration will proceed in a manner determined by the Registrar. Fees to be paid to either or both schools will be determined by the Registrar, LSUHSC-Shreveport.

SUPPORT
Students who apply to the program will be eligible for loans, grants, scholarships, tuition waiver, stipends or other financial aid available from the respective schools.

Students enrolled in the M.D./Ph.D. program will register in either or both the Graduate or Medical School as appropriate. If at any time a student is registered in both schools and it is necessary that he/she be considered to be enrolled in one school for special purposes such as loans, scholarship eligibility grants, etc., he/she shall be considered to be enrolled in the School of Medicine for the first and second years of the program, to be enrolled in the School of Graduate Studies commencing with the third year of the program through the completion of the requirements of the Ph.D. degree and in the School of Medicine thereafter. Other appropriate enrollment designations may be made by the M.D./Ph.D. Supervisory Committee, in the best interest of the student and the University.

Tuition waivers and stipends will be provided by the Schools of Graduate Studies or Medicine as shown in the attached M.D./Ph.D. Schedule of Fees, Tuition, and Stipends. Tuition waivers will be provided by the School of Graduate Studies after successful completion of the first two years of Medical School and passing Step-1 of the USMLE.

After successful completion of the Ph.D. degree program, in-state tuition and non-resident fees paid for the first year of Medical School will be reimbursed at the beginning of the third year of Medical School. In-state tuition and non-resident fees paid for the second year of Medical School will be reimbursed at the beginning of the fourth year of Medical School. These reimbursements will be provided through the School of Medicine.

In-state tuition and non-resident fee waivers for the final two years of the program to be completed in the School of Medicine will be provided for all students who have completed the requirements for the Ph.D. degree. These waivers will be provided through the School of Medicine.

A stipend at the current approved level is provided by the Basic Science Department of enrollment in accordance with departmental policies. Support should be provided from the time of completion of
the first two years of School of Medicine courses for a reasonable period of time or until completion of the requirements for the Ph.D. degree.

All forms of institutional support may be terminated for students who do not maintain acceptable grade point averages in the respective schools or who otherwise do not perform in a satisfactory manner in the schools or the program. All instances wherein support is terminated will be reviewed and approved by the M.D./Ph.D. Supervisory Committee.

All support provided for this program will be contingent on the availability of funds.

**PROGRESS**

Students' progress will be evaluated at the end of each semester by the M.D./Ph.D. Program Supervisory Committee. In addition, students will meet annually with the Committee to provide their input on the program.

Students will be expected to maintain at least a 3.0 grade point average. A grade in any course of D or F will automatically terminate the student's participation in the M.D./Ph.D. program. In addition, students must fulfill all the requirements for both the School of Graduate Studies and the Basic Science Department of enrollment and the School of Medicine.

Students who fail to maintain a 3.0 grade point average during any semester of the M.D./Ph.D. program will be considered on academic probation. A student may not remain on academic probation for longer than one calendar year. If a student fails to attain a 3.0 grade point average within one year of being placed on probation, he/she will be dismissed from the M.D./Ph.D. program.

Students will be continuously enrolled in the M.D./Ph.D. program until the requirements for both degrees are completed or until he/she withdraws or is dismissed from the program. Degrees will be awarded by the respective Schools at the completion of the School degree requirements.

Normal progress through the program should be completed within 7 years. Only under special circumstances and with the approval of the M.D./Ph.D. Supervisory Committee, with conditions stipulated, may students be allowed more than 8 years to complete the program.

Students seeking to withdraw from the program will petition the M.D./Ph.D. Supervisory Committee. After consideration of the student's request and other relevant information, the committee will make recommendations to the Schools. Further action will be taken by the appropriate School.

Students seeking to withdraw from the Medical School portion of the program, but to continue in the Ph.D. program, must reapply to the Ph.D. program through the Department admissions process and be accepted by the Department and the School of Graduate Studies. Medical School courses in which the student has received a grade of B or better, may be transferred to the Graduate School curriculum at the discretion of the Departmental Admissions Committee.

Students who choose to not complete the program, will reimburse the institution as shown in the M.D./Ph.D. Schedule of Fees, Tuition, and Stipends (attached).

The PhD. Degree will be awarded after completion of the requirements for the degree.
After the student has completed all the requirements for the Ph.D. degree, he/she will be required to spend the time between the deadline for submitting all copies of the approved dissertation to the Graduate School and the beginning of the third year of Medical School in a rotation course designed to reacquaint the student with fundamental aspects of Medical School training. The director of this rotation course will be the Associate Dean for Academic Affairs.

APPROVAL AND MODIFICATION
Approval of and modifications to this document may be made upon recommendation of the M.D./Ph.D. Supervisory Committee and the approval of the Administrative Council and Dean of the School of Medicine, the Graduate Advisory Council and the Dean of the School of Graduate Studies and the Chancellor of the Health Sciences Center. After modification, this document will be changed appropriately and circulated to the faculty of both schools.

CLINICAL AND TRANSLATIONAL DISTINCTION TRACK (CTDT)
(A Ph.D. graduate student parallel program to the Research Distinction Track Program that is available to medical students)

Goals:
Graduate students participating in the CTDT Program will:
1. Gain exposure to, and experience in, clinical research environments that will enhance their awareness of
a. Unique challenges faced by clinical research physicians
b. The need for clinical and basic science collaboration in successful clinical and translational research

2. Gain an appreciation for how recent/relevant basic research findings are disseminated and implemented within the clinical environment
3. Improve communication skills through designing and implementing informational presentations to professional colleagues or the general public.

Declaration of Participation
- A letter of nomination must be submitted to the Quality Enhancement Program and the School of Graduate Studies at any time after the graduate student has been approved as a Ph.D. candidate.
  - The student must obtain this letter of nomination from his/her Dissertation Research mentor and Department Head.
  - The student will be notified of acceptance into the program in writing from the Quality Enhancement Program.

Clinical Research Mentor
- The student will be responsible for identifying a clinical faculty member actively engaged in clinical research who will agree to act as the student's clinical research mentor. The Quality Enhancement Program staff will provide assistance in identifying the clinical mentor.
- This mentor will be responsible for providing the student with opportunities for participation in the clinical research environment.
- A letter of agreement between the student and the clinical research mentor that includes a defined plan and timeline will be submitted to the Quality Enhancement Program, the Graduate School, the student's dissertation mentor and the student's Department Head.

Student Commitments and Responsibilities
I. Seminar
- During their time in the program, all students will be required to attend a monthly sponsored seminar that has been especially selected for CTDT program participants (“sponsored” referring to a non-basic science department seminar, such as Grand Rounds, or those sponsored by the Feist-Weiller Cancer Center, The Center for Cardiovascular Diseases and Sciences, and the Post-Doc Association), and,
- Each month, the CTDT program will then host a follow-up meeting to facilitate discussion of the selected seminar. All CTDT students will be required to attend this meeting.
- A total of approximately 2 hours of dedicated time per month is required for the seminar aspect of this program.

II. Clinical Experience
- Students will also be required to spend 15-20 hours of one semester in the clinical research environment, in a capacity determined by their clinical research mentor.

III. Collaboration Experience
• The student will be required (once) to partner with a medical student (summer research or RDT student) who has done basic science research in order to help them prepare a poster for presentation. Ideally, this medical student will have engaged in research related to the CTDT participant’s dissertation research.

IV. Capstone Project
• CTDT students will complete one of the following Capstone Projects:
  1. Create and present a seminar, Grand Rounds presentation, or other presentation in a professional setting that addresses one aspect of clinical/translational research (ongoing clinical trials, drug discovery, human research, etc.)
  2. Create an informative/educational presentation on a medical condition, medical screening or research opportunity, to be presented in at least one public setting (health fair, disease-specific support group or class, community meeting, etc.).

Completion of Program
• The clinical research mentor must write a letter certifying the student’s completion of CTDT program requirements.
• Copies of this letter must be submitted to the student's department head, the student's dissertation mentor, the Graduate School and the Quality Enhancement Program.

Clinical and Translational Distinction Award
• Following verification of program requirement fulfillments, recognition of completion will be noted on the student's transcript.

Special Cases
Withdrawal of Participation
• Students who wish to withdraw from the CTDT Program may do so at any time without penalty by notifying their clinical research mentor, their Department Head, their dissertation mentor, the Graduate School and the Quality Enhancement Program in writing.

Incomplete Participation
• Students who do not-complete all program requirements will not be awarded the CTDT. No penalty will be administered.

Dissertation Awards

These awards are presented annually at the time of the spring commencement. Selection of the awardees is based upon research performance as demonstrated by the quality of the dissertation and related research accomplishments while a student. Selection of award recipients is made by a committee of faculty members appointed by the Graduate School Dean.
The Chancellor’s Award—A cash award of $500 and an inscribed plaque. This award was established on the Shreveport campus by the Chancellor of the Health Sciences Center - Shreveport in 2001.

The Dean’s Award—A cash award of $400 and an inscribed plaque. This award was established by the School of Graduate Studies in Shreveport in 2001.
Instructions for Completing Graduation Requirements

1. You must be enrolled as a student in the semester/term in which you defend your thesis/dissertation.

2. At registration, inform the Graduate School Office that you intend to graduate in that semester/term and pay the appropriate graduation fees. These fees cover a microfilming fee, a diploma fee and binding of 2 copies of the thesis/dissertation.

3. Be sure to obtain approval from your committee prior to scheduling your defense date.

4. Write your dissertation/thesis, conforming to the official style. The rules for writing dissertations/theses can be found on the School of Graduate Studies website (www.lsuhsccshreveport.edu/gradschool).

5. Two weeks before your final oral defense date, submit the completed appropriate request form to the Graduate School Office. The defense request form must include the signatures of all your committee members.

6. Make sure that public announcements of your oral defense are posted around campus for two weeks BEFORE the defense date.

7. Following a successful oral defense and approval of your dissertation/thesis, obtain signatures of your committee members on the final dissertation/thesis Final Examination form and submit to the Graduate School Office on or before the deadline for submission as defined in the academic calendar. Be sure to use the form provided by the Graduate School Office.

8. Prior to submitting your final thesis/dissertation copies for binding, provide a draft copy to the Graduate School Coordinator for review and approval. After the Coordinator has approved the draft, you may make the final copies to be submitted. One copy must be made on bond paper.

9. Submit at least two final, complete copies of your dissertation/thesis on or BEFORE the deadline for the semester in which you wish to graduate. Submission deadline dates are shown in School of Graduate Studies Schedule this student handbook and on the web site. You may also wish to submit additional copies for binding for your personal use. The Graduate School keeps the original, the library requires one copy and you may want to provide additional copies for yourself, your department, your mentor, your committee members and your family members.

10. Complete and submit the graduation documents provided by the Graduate School. Ph.D. graduates complete the ProQuest and the Survey Earned Doctorate (SED) survey forms. All graduates complete the exit survey, clearance form and thesis/dissertation distribution list.

11. Schedule an appointment for an exit interview and meet with the Graduate School Dean.
Instructions for Participating in Commencement Ceremonies

1. Notify the Graduate School Office that you will be participating in the commencement ceremonies at least one month prior to the ceremonies.

2. Order your cap and gown through the LSUHSC-S bookstore well before the commencement date. The bookstore will need information from you such as height and hat size. There will be no charge to you for cap and gown rental.

3. Pick up your cap and gown from the bookstore BEFORE it closes on the Friday before commencement.

4. Pick up your Ph.D. hood from the Graduate School Office BEFORE it closes on the Friday before commencement. Graduates who participate in the May commencement may obtain their hoods at the awards breakfast on the morning of commencement.

5. Commencement is held in May (for December and May graduates) and in August (for August graduates). Your attendance is expected.

6. Leave your cap and gown at the commencement location after the ceremony - Ph.D. graduates keep their hoods.
GRADUATE ADVISORY COUNCIL

The Graduate Advisory Council consists of the Dean, School of Graduate Studies, the Heads of the five Basic Science Departments, the Graduate Program Director of each Department and two faculty members elected at-large from the Graduate Faculty. Also included are a Ph.D. student representing the Graduate Student Council and an M.D./Ph.D. student. The Council determines policies for the Shreveport campus, School of Graduate Studies. The 2015-2016 members are:

SANDRA C. ROERIG, Ph.D.,
Dean, Graduate Studies, Associate Dean for Research

HARI KOUL, Ph.D.,
Head, Biochemistry and Molecular Biology

BRENT REED, Ph.D.,
Graduate Program Director, Biochemistry and Molecular Biology

WILLIAM MAYHAN, Ph.D.,
Head, Cellular Biology and Anatomy

KATHRYN HAMILTON, Ph.D.,
Graduate Program Director, Cellular Biology and Anatomy

DENNIS J. O'CALLAGHAN, Ph.D.,
Head, Microbiology and Immunology

MICHELLE ARNOLD, Ph.D.,
Graduate Program Director, Microbiology and Immunology

D. NEIL GRANGER, Ph.D.,
Head, Molecular and Cellular Physiology,

LYNN HARRISON, Ph.D.,
Graduate Program Director, Molecular and Cellular Physiology

NICHOLAS GOEDERS, Ph.D.,
Head, Pharmacology, Toxicology and Neuroscience

KENNETH MCMARTIN, Ph.D.,
Graduate Program Director, Pharmacology, Toxicology and Neuroscience

KELLY TATCHELL, Ph.D.,
Elected Member, Biochemistry and Molecular Biology

FELICITY GAVINS, Ph.D.,
Elected Member, Molecular and Cellular Physiology

AARON NAVRATIL, Student Member,
Department of Microbiology and Immunology

ADAM XIAO, MD/PhD Student Member
Department of Molecular and Cellular Physiology
GRADUATE FACULTY

Biochemistry and Molecular Biology
- Eric Aamodt, Ph.D.
- Arrigo DeBenedetti, Ph.D.
- Eric First, Ph.D.
- David Gross, Ph.D.
- Shile Huang, Ph.D.
- Sushil Jain, Ph.D.
- Hari Koul, Ph.D.
- Nancy Leidenheimer, Ph.D.
- Brent Reed, Ph.D.
- Lucy Robinson, Ph.D.
- Kelly Tatchell, Ph.D.
- Stephan Witt, Ph.D.
- Xiuping Yu, Ph.D.

Status
- Member
- Member
- Member
- Member
- Member
- Member
- Member
- Member
- Member
- Associate Member

Cellular Biology and Anatomy
- Edward Glasscock, Ph.D.
- Kathryn Hamilton, Ph.D.
- Christopher Kevil, Ph.D.
- David Krzywanski, Ph.D.
- Terrel Master, Ph.D.
- William Mayhan, Ph.D.
- Kevin McCarthy, Ph.D.
- A. Wayne Orr, Ph.D.
- Manikandan Panchatcharam, Ph.D.
- Joseph Penny, Ph.D.
- Hong Sun, Ph.D.

Status
- Associate Member
- Member
- Member
- Associate Member
- Associate Member
- Member
- Member
- Member
- Associate Member
- Associate Member
- Associate Member

Microbiology and Immunology
- Michelle Arnold, Ph.D.
- Jason Bodily, Ph.D.
- James Cardelli, Ph.D.
- Robert Chervenak, Ph.D.
- Lindsay Hutt-Fletcher, Ph.D.
- Stanimir Ivanov, Ph.D.
- Jeremy Kamil, Ph.D.
- David McGee, Ph.D.
- Martin Muggeridge, Ph.D.
- Dennis O'Callaghan, Ph.D.
- Kenneth Peterson, Ph.D.
- Martin Sapp, Ph.D.
- Rona Scott, Ph.D.
- Ikuo Tsunoda, Ph.D.
- Matthew Woolard, Ph.D.
- Andrew A. Yurochko, Ph.D.

Status
- Member
- Associate Member
- Member
- Member
- Member
- Member
- Member
- Member
- Member
- Member
- Member
- Member
- Member
GRADUATE STUDENT COUNCIL

The Graduate Student Council consists of one representative from each of the Basic Science Departments. These representatives are elected by the students in their respective Departments and may serve for 1-2 year terms. The Graduate Student Council meets regularly with the Dean of the School of Graduate Studies to discuss issues related to graduate education and policies of the School, plan events such as Graduate Research Day or perform other business. The Council elects a representative who is a member of the Graduate Advisory Council.

2015-2016 Graduate Student Council Representatives
Stephanie Villalba (Department of Cellular Biology and Anatomy)
Dhaval Patel (Department of Biochemistry and Molecular Biology)
Aaron Navratil (Department of Microbiology and Immunology)
Merve Kasap (Department of Pharmacology, Toxicology and Neuroscience)
Priya Prasai (Department of Molecular and Cellular Physiology)
GRADUATE STUDENT ATTITUDE AND RESPONSIBILITY

Graduate students are expected to behave in a mature and responsible manner and to exhibit a spirit of cooperation with the faculty, their fellow students, and all other members of the Departments in the School of Graduate Studies. Each student is ultimately responsible for his/her own career decisions. In addition, students should take an active part in fostering the development of the Graduate School at LSUHSC-Shreveport and in promoting the research environment. This participation should be at all levels – from assisting in the recruitment of new graduate students, to helping fellow students in coursework, to serving in elected positions on the Graduate Student Council or other LSUHSC-S Committees, etc. The student should realize that his/her professionalism as a developing scientist enhances the reputation of the LSU Health Sciences Center in Shreveport and that the proper environment for productive learning and research is attained by collaborative efforts of all members of the School.

Students are required to follow all institutional policies. Violation of institutional policies that would warrant dismissal of an employee would also support dismissal of a graduate student from the program. Institutional policies include use of institutional computers, telephones, e-mail system, etc, as outlined in the Chancellor's Memoranda (CMs), as well as the dress code, drug and alcohol policies and other policies described later in this handbook.
The Honor Code was established by a student Honor Council and approved by the student body and faculty of LSUHSC. It governs all examinations and all aspects of academic life, and is applicable to all students enrolled in the School of Graduate Studies.

LSUHSC-S Student Honor Code

Preamble

We, the student body of the Louisiana State University Health Sciences Center in Shreveport believe that students in medical and graduate school should explicitly uphold basic principles of behavior that constitute acceptable academic, professional and ethical conduct, and hereby set forth this Honor Code. Agreement to the Honor Code by signature is required of each student before completing registration to enter the Medical and Graduate Schools. The Honor Code is not intended to be a mere listing of matters that constitute infractions but is intended to be a general statement by each student to uphold the high standards of integrity and honesty of the medical science professions.

The Student Honor Council is to be made up of an elected Chair, two elected representatives from each medical school class, and two representatives from the graduate school. The Student Honor Council is responsible for the general maintenance of academic and professional integrity, including but not limited to receiving reports of suspected violations, consulting with members of the medical school community concerning ways to reduce possible violations, and orienting new students to the Honor Code. Any member of the Student Honor Council can be removed from duty upon two-thirds vote of the entire Council. All members of the Student Honor Council are bound to maintain the confidentiality of students accused or found guilty of Honor Code violations and understand that breaches of confidentiality constitute a severe Honor Code violation.

I. Violations

To act in any way contrary to academic honesty or professional and ethical conduct is considered a violation of the Honor Code. Specific examples of violations include, but are not limited to the following:

A. To obtain an unfair advantage by (a) stealing, reproducing, circulating or otherwise gaining access to examination materials prior to the time authorized by the instructor; (b) stealing, destroying, defacing, or concealing library materials; (c) unauthorized collaboration on an academic assignment; (d) retaining, possessing, memorizing, using, or circulating previously given examination materials, where those materials clearly indicate that they are to be returned; (e) intentionally obstructing or interfering with another student's academic work, or (f) otherwise undertaking activity with the purpose of creating or obtaining an unfair academic advantage over another student's academic work.

B. To cheat or attempt to cheat; to gaze at or look upon the work, exam or answer sheet of a classmate during an examination.

C. To communicate, in any manner with any unauthorized person, during an examination.

D. To plagiarize or to misrepresent the work of another person as one's own.
E. To misrepresent or falsify research data.

F. To misrepresent or falsify data or results concerning a patient's clinical status or to break the confidentiality of any person in treatment or rehabilitation.

G. To file a false complaint with malicious intent, or testify falsely under this Honor Code.

H. To treat patients or fellow colleagues in a manner contrary to those standards of integrity deemed necessary of the medical science professions.

I. To misrepresent oneself as a physician or degreed professional prior to completion of education.

J. To fail to report an observed violation of this Honor Code.

K. To falsify any document or form.

L. To misappropriate or steal the property of another.

II. Procedures and Policies for Alleged Honor Code Violations

A. General Policies

1. It remains the sole responsibility of the student to conduct him/herself in a manner which supports and promotes the high standards of integrity and honesty required in the medical science professions. Ignorance of a violation cannot be a defense for the accused.

2. Faculty members are responsible for specifying at the beginning of each course the basic rules and procedures for course work and examinations. The faculty should make a reasonable effort to deter violations of the Honor Code, using measures deemed appropriate. This could include, but is not limited to, the use of controlled seating arrangements and active proctoring during exams. It is the faculty's responsibility to provide adequate testing conditions including sufficiently large testing rooms and stated rules concerning restroom privileges and leaving the testing center. Students may issue a written complaint to the Assistant Dean for Student Affairs in the case of Medical Students or the Dean for Graduate Studies in the case of Graduate Students if these measures are felt to be unsatisfactory or excessive. (Hereafter in this document the appropriate Assistant Dean or Dean for each student population will simply be referred to as the Assistant Dean/Dean.) If an alleged Honor Code Violation occurs outside of the purview of an academic department, the Assistant Dean, with the approval of the Dean, will appoint a faculty member to act in lieu of a department head in reviewing the alleged Honor Code violation.

3. All faculty members are responsible for taking appropriate action in accordance with this Honor Code in ALL cases of suspected violations. The handling of suspected violations outside the provisions made in this Honor Code is strongly discouraged.

4. Procedures shall be implemented in writing through the Assistant Dean/Dean.
5. Should a student elect to withdraw from school rather than follow the procedures outlined herein, the circumstances of the withdrawal shall be noted in the student's academic transcript and in any subsequent letters of recommendation. The investigation, however, may proceed in the student's absence. Should any subsequent proceedings be deemed necessary, the involved party shall be notified and shall maintain all the rights guaranteed herein.

6. The investigative process (Section D) shall begin within two weeks of the written accusation being filed with the Assistant Dean/Dean.

B. Report of Violations

1. If a faculty member observes a possible violation of the Honor Code, (s)he shall notify the Course Director who will review the evidence and the facts of the case promptly with the Head of the Department and then with the student suspect. The Course Director will then proceed, with the approval of the Head of the Department. If after speaking with the student, the Course Director believes that a violation has occurred, (s)he may (a) settle the case directly with the student as outlined below or (b) promptly report allegations of violations to the Assistant Dean/Dean in the form of a written statement including the description of the circumstances that gave rise to the charges. The Assistant Dean/Dean shall advise any person submitting a statement of their obligations in any investigation and hearing.

2. If a student observes a potential Honor Code violation, (s)he shall promptly report it to a member of the Student Honor Council, who shall promptly discuss the matter with the Course Director involved. Every reasonable effort shall be made to maintain in confidence the identity of persons who submit statements of violations during the preliminary stages of the investigation, although their confidentiality cannot be preserved during the hearing.

C. Settlement with the Course Director: A Course Director, with the concurrence of the Department Head, has the authority to settle a case where the alleged student misconduct has occurred within the departmental purview. Penalties imposed in this matter may only be selected from the following four items:

1) Retaking of the examination or exercise involved.
2) Scoring of zero on the examination or exercise involved.
3) Lowering of course grade.
4) Failure in the course.

The Course Director, after a thorough discussion of the matter with the accused student and the Department Chair, must submit to the Assistant Dean/Dean a document describing the nature of the violation and the penalty assigned. This document shall bear the signatures of the Course Director and the Head of the Department, with a copy to the student. This document shall be maintained in confidence by the student, Course Director, Department Head, and Assistant Dean/Dean. If the penalty imposed is failure in the course, that grade may appear on the transcript as it would in the case of academic failure. However, in this settlement with the Course Director, no statement which connects the penalty imposed with an alleged honor code violation shall appear on the academic transcript of the accused. If the student concurs with the assigned penalty, (s)he shall sign the above described document with the Course Director and Department Head, indicating agreement with the penalty. In the event that a student feels that (s)he has not been treated appropriately or has not been allowed due process, (s)he may write an appeal letter to the Dean. After reviewing the student's
appeal, the Assistant Dean/Dean shall either concur with the penalty imposed by the department, or shall return the matter to the Course Director and Chairman, who will have ten working days in which to file a written report of alleged Honor Code violations with the Assistant Dean/Dean for further resolution as outlined in this Honor Code.

D. Allegations Investigated by the Assistant Dean/Dean: Upon receipt of the written report of alleged Honor Code violations, the Assistant Dean/Dean shall give the accused immediate written notification of the nature of the charges that have been filed. The accused shall be provided with a written outline of all procedures and informed of his/her rights with respect to the same.

Investigation of alleged violations shall be conducted by the Assistant Dean/Dean, who may select and convene an investigating committee composed of faculty and students. Students shall be selected from the membership of the Student Honor Council when appropriate. Faculty shall be selected from the General Faculty. At such time that the Assistant Dean/Dean concludes that sufficient evidence exists, with the concurrence of the Dean of the School, (s)he shall formulate the charges against the accused in writing.

E. Hearing of Charges: The accused, the Department Head, the Elected Faculty Council Chair, and the Student Honor Council Chair shall be notified in writing that a hearing is to be conducted and a Hearing Panel chosen. At the time of written notification, the accused may choose a faculty advocate to review the evidence, assist in preparing for the hearing, and assist at the hearing. A Student Honor Council member shall be available to meet with the accused to explain policies and procedures.

The assignment of a date for the hearing will be made by the Assistant Dean/Dean within four school weeks following written notification of the accused concerning the charges. The date of the hearing may not necessarily fall within the four-week period, but shall be as soon as is feasible, commensurate with other academic matters. The accused shall be informed of his/her rights with regard to the hearing. The Assistant Dean/Dean shall be responsible for notifying all witnesses, including those for the accused.

The Hearing Panel shall consist of the Chair of the Elected Faculty Council (or his/her designee from the Faculty Senate), four members from the Faculty Elected Faculty Council plus the Graduate School Representative to the Senate selected by lot (two selected from the Basic Science Departments and two from the Clinical Departments), the Chair of the Student Honor Council or his/her designee, and three members of the Student Honor Council selected by the Student Honor Council Chair. Should three members of the Student Honor Council not be available, student representatives shall be selected from among the class officers. No member of the Administrative Staff, the Assistant Dean of the Medical School or the Dean of the Graduate School, or anyone who is judged to have a conflict of interest shall serve on the Hearing Panel. Members of the investigating committee shall not serve on the Hearing Panel. Each of the nine Hearing Panel members shall have one vote. In the event of emergency absences, at least seven (7) of the members of the Hearing Panel must be present to constitute a quorum for vote, and a majority of the members present shall rule. The Chair of the Hearing Panel shall be the Faculty Senate Chair or his/her designee.

Persons to be present for the formal hearing include the members of the Hearing Panel, the designated witnesses, the Department Head or his/her designee who will present the case, and the accused; if the Department Head is a witness to the violation, (s)he shall function only as a witness, and shall designate a faculty member to present the case. The accused may be accompanied during the hearing.
by any one faculty member of his/her choice from LSU Health Sciences Center-Shreveport. The accused may not have any other advocates or observers in the hearing, except for witnesses. Witnesses shall be present one at a time during the time of witness testimony. Legal representation for either the accused or accuser(s) shall be prohibited in the hearing.

Evidence and personal testimony supporting the allegations shall be presented to the Hearing Panel by the Department Head involved or his/her designee. Thereafter, the accused may present a defense and offer evidence or testimony of witnesses that support the defense. The accused and accuser(s) are limited to three character witnesses each.

At any time during the presentation of evidence and personal testimony, any member of the Hearing Panel, the person presenting the case, or the accused may ask questions. Following the presentation of evidence and personal testimony, the accused and the person presenting the case shall orally summarize their positions. These final presentations shall not be interrupted by questioning.

The Chair of the Hearing Panel shall control the proceedings and shall conduct a hearing that is both thorough and fair. The hearing is intended to allow informal but complete presentation of all relevant information. The proceedings of the Hearing Panel shall be confidential. A professional stenographer shall take and transcribe written notes of the proceedings, which shall be maintained in confidence by the Chair. No tape recorders, other than the stenographer's, shall be permitted at these proceedings.

Following the presentation of the evidence and testimony, the Hearing Panel shall deliberate privately and determine the recommendation to be submitted to the Dean. The stenographer is not required for these deliberations. The Chair of the Hearing Panel shall submit to the appropriate Dean the written recommendation, its basis, and a transcript of the proceedings within five working days of the Hearing Panel’s decision. A copy of the recommendation and its basis shall be submitted simultaneously to the accused and to the Department Head involved. These persons may, at their request, receive a transcript of the entire proceedings.

Any member of the panel who dissents from the recommendation may submit his/her reasons in writing when the recommendation is submitted to the appropriate Dean.

F. Recommendations of the Hearing Panel

Should the Hearing Panel find that evidence does not support the charges, no mention of the accusations or proceedings shall be made on the student's permanent record. Should a student be found guilty, the Hearing Panel shall submit a recommendation of penalty to the appropriate Dean. The Dean of the School of Medicine or the Dean of the School of Graduate Studies may accept or reject the recommendation, in whole or in part, or may remand the matter to the Hearing Panel for further investigation, if appropriate.

One of the following penalties shall be imposed upon students found guilty of violations by the Hearing Panel:
1) Failure in the course
2) Failure in the course with suspension from school for one year.
3) Expulsion from school at LSUHSC-Shreveport.
Upon the Dean's concurrence with the recommendation of the Hearing Panel, the Registrar will place a notation of the designated penalty on the student's academic transcript. The notation will consist of the statement of penalty assigned (from the above list), naming the course involved, if any, followed by: Result of an Honor code Hearing.

III. Appeals: A student may appeal the decision of the appropriate Dean to the Chancellor of the Health Sciences Center. If there is an appeal, the transcript of the hearing, the recommendations of the Hearing Panel, and the decision of the Dean shall be transmitted to the Chancellor for review. The disposition of the case by the Chancellor of the Health Sciences Center shall be final.

IV. Amendments: Any member of the student body or faculty may propose amendments to the Honor Code described herein. Ratification of the proposed amendments shall require approval by two-thirds of the Student Honor Council, a simple majority of those voting from the student body, and a simple majority of a quorum of the General Faculty.

This revision was ratified as specified above: Approved by Student Honor Council, Student Body, and finally by the General Faculty at the May 20, 1997 meeting. In addition, the Elected Faculty Council and the Administrative Council have approved the amendments.

**RESEARCH MISCONDUCT**

Individuals involved in research projects must be aware of the institutional policies of reporting allegations of research misconduct. According to the Office of Research Integrity of the Federal Health and Human Services Division, research misconduct is defined as fabrication, falsification or plagiarism in proposing, performing or reviewing research, or in reporting research results.

- **Fabrication** is making up data or results and recording or reporting them.
- **Falsification** is manipulating research materials, equipment or processes or changing or omitting data or results such that the research is not accurately represented in the research record.
- **Plagiarism** is the appropriation of another person's ideas, processes, results or words without giving appropriate credit.

Research misconduct does not include honest error or honest differences of opinion

Individuals who observe or learn of research misconduct by another individual, and have substantial evidence to support these observations, are required to immediately report an allegation of research misconduct to the Research Integrity Officer (RIO), Sandra C. Roerig, Ph.D. Any allegation made in good faith will immediately be investigated by the RIO.

The RIO and the institution will treat both the whistleblower (individual making the allegation) and the respondent (individual against whom an allegation of research misconduct is directed) with fairness and respect. During all proceedings, confidentiality will be maintained to the maximum extent possible.

A complete description of institutional policies and procedures regarding allegations of research misconduct are found on the Office of Research web site - [www.lsuhscshreveport.edu/research](http://www.lsuhscshreveport.edu/research)
INTELLECTUAL PROPERTY AND CONFIDENTIALITY

As a medical institution, many faculty members at LSUHSC-S are engaged in research that may lead to novel therapies or new medical devices. For these discoveries to be fully realized and impact health care, it is important that patent applications be filed on the invention. For something to be patentable, it must be a new discovery, must have a use, and must not be obvious to someone skilled in the art. The first criterion, that it is a new discovery, is very important. For something to be new, it must not have been disclosed to anyone before the patent is filed. This means that the idea can only be discussed with LSUHSC-S faculty, students and other employees; it cannot be discussed outside of LSUHSC-S with friends, colleagues or even family members, without a confidentiality agreement in place. By doing so, the discovery will be deemed to be in the public domain and no patent will be granted, potentially costing the university and the inventors’ revenue from the invention and also preventing it from reaching the marketplace. To protect everyone, it is important that no discussion of novel discoveries be made without permission of the mentor.

Another important outcome of protecting LSUHSC-S’s intellectual property position is the formation of new start-up companies based on the new discoveries. The faculty member who made the discovery is often part of the founding team and may continue to play a role with the company. While faculty members do their best to separate their activities at the university from that of the company, you may notice their excitement about what is happening with their invention at the company. It is important that you not discuss this information outside of LSUHSC-S as well. Companies are always dealing with raising capital, whether they are a small company looking for initial funding or a large company hoping to boost their stock price, and the release of confidential information could result in a major investigation by the Security and Exchange Commission leading to lawsuits and potentially even prison.

While intellectual property and commercialization opportunities represent an important source of potential revenue and new therapies to better healthcare, care must be taken to protect everyone’s interest involved. The best advice: don’t assume that it is okay to talk about what discoveries you and your co-workers have made, always check with your mentor before discussing or presenting any information to others outside of LSUHSC-S.
Health Insurance: The Office of the Registrar coordinates the Student Health Program for graduate students and will attempt to answer questions about the Student Health Program. For questions that cannot be answered by this office, contact AIG, Educational markets at 1-888-622-6011 or educationalmarkets@aig.com or on the website www.studentinsurance.com/Schools/LA/LSUHSC.

All graduate students are required to maintain comprehensive health insurance while enrolled in a program. Prior to registration, each student must complete an online waiver form that states their health insurance will be maintained for the semester. An e-mail message with instructions will be sent to the students from the Office of the Registrar. The insurance must cover the student for the entire semester for which the student is being registered.

Eligibility: Students of the Schools of Medicine, Allied Health Professions, and Graduate Studies are eligible. Spouses and children of these students are eligible. Below are contact numbers for several clinics.

ALL STUDENTS and THEIR DEPENDENTS
(When making appointments, ALWAYS identify yourself as a student or the spouse of a student)

More detailed information regarding the Student Health Program is available:
http://www.sh.lsuhsc.edu/student-affairs/OOSA/health1.html

Emergent Care: Occupational Health Clinic; 8th floor Hospital
Weekday 7:00am - 4:30pm

Emergency Room; 1st floor Hospital

Prompt Care: Family Medicine Prompt Care; 3rd floor A Building
Weekday 8:00am - 3:00pm
Call 675-5183 for Appointment

Chronic Care: Medicine Clinic
Call 675-5980 for Appointment

Ob/Gyn Clinic
Call 675-5379 for Appointment

Pediatric Clinic
Call 675-8600 for Appointment

Counseling Service
Dr. Mark Cogburn
Call 318-676-5002 for an Appointment
Medical Services
For students and spouses, medical outpatient care will be administered by the faculty of the Department of Internal Medicine. Steven Levine, M.D., Professor, Department of Medicine, is Director of this service.

For female students and spouses, obstetric and gynecologic care will be administered by the Department of Obstetrics and Gynecology. Rose M. Brouillette, M.D., Associate Professor of Obstetrics and Gynecology is Director of this service.

For children of students, pediatric care will be administered by the Department of Pediatrics. Steven N. Bienvenu, M.D., Associate Professor of Pediatrics is the Director of this service.

Counseling and therapy for students and their dependents will be administered by Mark Cogburn, Ph.D., Director of Student Mental Health Services. Students may contact him for an appointment at 318-675-5002 or mcogbu@lsuhsc.edu. There is no cost beyond the Student Health Fee for all students who are enrolled full-time.

Student immunization records and updating of student immunizations, post-exposure chemoprophylaxis, TB testing, etc., will be handled by the Occupational Health Clinic (Employee Health). The Occupational Health Clinic will also provide flu immunizations for students, free of charge, at the appropriate time of year.

The details of clinic hours, location, phone numbers, procedure for making appointments and handling of medical needs, both within and outside of normal working hours, etc. follow the next section on Billing and Payment.

Billing and Payment

There is a requisite student health fee at registration. LSUHSC requires that students purchase and maintain health insurance either through the school, or independently. Students are admonished to purchase health insurance for their dependents. The policy offered by LSUHSC-S is comprehensive medical insurance coverage. If purchased independently, the policy obtained by the student must offer comprehensive medical insurance coverage. The policy deductible shall be no greater than $300 per year. If the health insurance policy purchased by the student has a deductible greater than $300, the student will be responsible for paying the difference in deductibles, for health related charges incurred at LSUHSC-S. Furthermore, if the student's health insurance is under a PPO or other managed care organization which does not allow payment to LSUHSC-S, the student will be responsible for charges incurred at LSUHSC-S, beyond the above allowed deductible.

Consistent with the rules stated above governing student health insurance, the student's health insurance company will be billed for clinic visits (physician’s fees); the student will not be billed for his/her LSUHSC-S Student Health Program clinic visits (physician fees), nor will his/her dependents be billed for clinic visits. The insurance payment will be accepted as payment in full under the Student Health Program, unless the requirements noted above are not met regarding the deductible amount, and the maintaining of comprehensive medical insurance coverage.

If Laboratory, X-Ray, hospitalization, etc. (services other than provided by a physician), are required at LSUHSC-S, charges will be billed to the student's health insurance. Dependents of students will be treated likewise. In either case, the proviso is that the individual is insured appropriately, having
comprehensive medical insurance with a deductible as described above. If the student is not insured, he/she is responsible for the incurred charges. If the student's dependent is not insured, the student is responsible for the charges.

LSUHSC-S will cover the cost of post-exposure chemoprophylaxis of students exposed to HIV blood (needle sticks, etc.). This is a four-week course of post-exposure therapy involving Combivir for the basic regimen, plus the addition of a protease inhibitor, as Indinivir, when an expanded regimen is required. Such treatment will be coordinated, including follow-up, through the Occupational Health Clinic (Employee Health).

**Policies for Routine Medical Care**

Eligible students or dependents in need of acute medical care during routine work hours (7AM - 4PM, Monday - Friday) should go to the Occupational Health Clinic on the 8th floor in the hospital (Room 8-H8; Ph. 675-6281). There is a designated Student Health Nurse in the Occupational Health Clinic who will see students and evaluate them first and then contact the Chief Internal Medicine Resident to see the student, as necessary.

Emergency care is available 24 hours a day through the Emergency Department in the Emergency Room, where Emergency Medicine staff will attend to the student or dependent.

Follow-up or routine care may be sought in the Faculty Clinic with Dr. Steven Levine. Limited time slots shall be made available on Wednesday afternoons in the Clinic; arrangements may be made by contacting Ms. Cathy Couvillion at 675-5980. Individuals who have co-payments as part of their insurance plan should expect to pay these at the time of registration into the Clinic.

The Faculty of the Department of Internal Medicine will provide all physician services (both routine and any consultations by sub-specialty Faculty) for students or their dependents. However, we are unable to adjust any clinic or hospital charges that may be incurred as the result of the care given (i.e., laboratory, radiology or pathology charges). In addition, hospital and clinic charges are billed through the hospital billing system and must be settled with that department.
Student Health Program, a Step-by-Step Guide

I need to see a physician, my problem is:

- A routine annual check-up or prescription renewal
- Make an appt. at one of the ambulatory care clinics (ACC)
- I am sick
  - I had a needle stick
  - I was bitten by a rat/mouse
  - I need immunizations
- Visit Occupational Health on the 8th floor, hospital
  - Open M-F
  - 7:00 am – 4:30 pm
- Call 911 or other help
  - Go straight to the emergency room
- I can’t breathe,
  - I’m bleeding uncontrollably,
  - I broke my arm/leg/ankle
- I am sick
  - I had a needle stick
  - I was bitten by a rat/mouse
  - I need immunizations
- I am sick
  - I had a needle stick
  - I was bitten by a rat/mouse
  - I need immunizations
- I am sick
  - I had a needle stick
  - I was bitten by a rat/mouse
  - I need immunizations

To make an appointment in one of the ACC clinics contact the call center

318-212-9440

Billing Information:
- Occupational Health Nurse takes care of immunizations, flu shots, minor skin abrasions, etc.
- Anything else, the chief resident will be contacted and, if needed, an appointment will be made in the ACC clinic as a walk-in patient or sent directly to the ER.
- A bill will be sent for counseling services to the student’s insurance company. However, any amount that is not covered will be written off and the student will not be billed.

Student Self-Service Portal: A feature for students is the self-service system. This web application allows students to access transcripts, class schedules, financial aid accounts, and other reports and allows students to update personal information. Enter the following URL:

http://academicselfservice.lsuhsc.edu

Enter your User ID and Password to sign into the Self Service system

Student Services

Counseling Services:
Mark Cogburn, Ph.D.
318-676-5002
mcogbu@lsuhsc.edu
Cell phone 903-407-2000
Office Located at:
1023 Provenance Place
Shreveport, LA
Any questions about the use of the system can be directed to the Registrar, Ms. Kim Carmen.

**Student Access Cards:** Each student will need an ACCESS card to enter the Health Sciences Center after hours. Cards are issued in the Parking Office on the first floor of the Administration building, Room 123. Access to individual floors in the Biomedical Research Institute (BRI) can be obtained through Ms. Sha Williams (675-7580, Room F1-50) in the Office of Research on the first floor of the BRI building.

**Counseling/Therapy:** The graduate students are the primary concern of the School for Graduate Studies. The Graduate Program Director in each of the various Departments will provide counseling in both academic and personal matters. In addition, the Office of the School for Graduate Studies should be consulted when an academic or a personal problem that cannot be addressed in the student's own Department is encountered. If Dr. Roerig cannot directly help, she will do her utmost to put the student in touch with qualified help.

Professional counseling and therapy services are available at no cost beyond the Student Health Fee for all students who are enrolled full-time. Students who wish to take advantage of these services may call for an appointment to seek counseling with Mark Cogburn, Ph.D., Director of Student Mental Health Services. Students may contact him for an appointment at 318-675-5002 or mcogbu@lsuhsc.edu. There is a strict policy of confidentiality upheld by all parties.

The goal of the counseling service as well as the faculty is to assist the students in defining and accomplishing their personal and academic objectives and to help them find alternatives to situations in life that are not satisfactory. If students are having any nagging thoughts or problems, they should not hesitate to seek help.

**Emergency student loans:** Short-term loans are available through the Office of Graduate Studies, Yang Fang Memorial Fund. Up to $500 may be borrowed with no interest for up to 90 days. After 90 days, a 10% penalty is charged. Loans to students enrolled for the first time for the fall or spring semester may be considered by petition to the Dean. Loans MUST be repaid in full prior to registration for the subsequent semester in the program. No loans will be given during the final semester of enrollment in the program. Ms. Jessica Cote, Coordinator for the Office of Graduate Studies, has information on these funds.

**Student Financial Aid**

Until recently, financial aid could be disbursed to a student as long as he/she was allowed to remain enrolled as a student. Now, if the student completes a course with an unsatisfactory grade (i.e., an "F"), the next financial aid disbursement will be delayed until a certain number of course credits with a satisfactory grade are completed. For details on this policy, talk with Ms. Sherry Gladney, Director of Student Financial Aid.

<table>
<thead>
<tr>
<th>Director:</th>
<th>Ms. Sherry Gladney</th>
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<tbody>
<tr>
<td>Assist. Director:</td>
<td>Ms. DeAnna Fuller</td>
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<tr>
<td>Financial Aid Counselor:</td>
<td>Chris Moree</td>
</tr>
<tr>
<td>Location:</td>
<td>Room 1-214</td>
</tr>
<tr>
<td>Telephone:</td>
<td>318-675-5561</td>
</tr>
<tr>
<td>Fax:</td>
<td>318-675-7893</td>
</tr>
<tr>
<td>Hours:</td>
<td>8:30 a.m. to 5:00 p.m., Monday - Friday</td>
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E-mail: shvfinaid@lsuhsc.edu

The Financial Aid office establishes a guideline budget for educational expenses each year and then helps students receive the financial aid they need, up to the limit set by the budget. Emergency loans are not included in the budget or given out by the Financial Aid Office.

Office of Student Activities: The Office of Student Activities operates under the supervision of the Assistant Dean for Student Affairs for the Medical School. The primary function of this office is to coordinate extracurricular activities for all medical students and some activities for graduate students. Major annual events in the medical school include a Halloween Costume Party, the Christmas Party, and the Crawfish Boil. The office of Student Activities also works closely with such medical student organizations as the Executive Council and the Pulse (the LSUHSC-S yearbook), and it supervises the election of all Medical School class and Executive Council officers.

Registrar

Registrar: Ms. Kimberly Carmen
Office Coordinator: Ms. Sandra Ward
Admin. Secretary: Ms. Shanna Saxton
Location: 1-212 (First floor, "B" Building)
Telephone: 318-675-5205
Hours: 8:00 a.m. to 4:30 p.m., Monday - Friday
E-mail: shvreg@lsuhsc.edu

The Office of the Registrar issues official transcripts and enrollment verifications. Transcript request forms, course add/drop forms and withdrawal forms are available on the Registrar website. The Student Self-Service Portal is also available on this website. The Office of the Registrar also publishes the school calendar as well as the schedules for all academic years.

Multicultural Affairs

Director: Ms. Shirley Roberson
Secretary: Ms. Lenora O’Neal
Location: 2-428 (Second Floor, "C" Building)
Telephone: 318-675-5049
Hours: 8:30 a.m. to 5:00 p.m., Monday - Friday

The Office of Multicultural Affairs enhances the diversity of the health sciences center by assisting in the recruitment and retention of underrepresented minority students into the schools of medicine, graduate studies, and allied health professions. The office provides services and programs to students including academic and/or personal counseling and the Pre Matriculation Enrichment Program (PEP). In addition to these activities, this office also sponsors the Jumpstart Summer Enrichment Program for high school students, the Undergraduate Research Apprenticeship Program and the Educational Familiarization Program for college students.

Print Shop
Manager: Mr. Kevin Hayes
Location: Southwest of K Wing, near Physical Plant
The Print Shop building is located southwest of K wing, near the Physical Plant building. The Print Shop is a section of Auxiliary Services, offering top quality printing and reprographics to departments, faculty and students. Services offered by the Print Shop include digital printing, flyers, brochures and high volume copying. Many students use the Print Shop to provide the final copies of their dissertations and theses. A full description of available services and the price list may be found at: http://ah-aux.lsuhsc.edu/printshop

Medical Communication
Director: Ms. Sally Croom
Location: Building C, Room 2-424
Telephone: 318-675-5260
Hours: 8:00 am to 4:30 pm

Medical communications provides professional services including desktop publishing, graphing design photography and web design. A full list of services including pricing can be found at: http://www.medcom.lsuhscshreveport.edu/Services.com

Student Union
Location: 1417 Woodrow
The LSUHSC-S Student Union was built using funds generated from student fees. It opened in 2002 and contains kitchen facilities, entertainment center (television, VCR and DVD) and space for students to study and relax. A committee consisting of medical students, graduate students and various administrators oversees the use of the building. The student access card for the Medical School building will also access the student union.
POLICIES FOR USE OF THE STUDENT UNION*

1. The hours will be 7:00 am to 11:00 pm every day of the week unless there is a special function, such as a class party, in which case the hours may be extended to 2:00 am.

2. Special functions that are booked for the entire student body or an individual school, may be booked on a yearly basis. Conflicts in the yearly schedule will be resolved by a meeting of representatives from each of the schools. However, no group can reserve the Union for recurring weekly functions (such as TGIFs) without the consent of the Student Union Committee.

3. Union reservations will be made through each school’s respective contact person: (School of Allied Health – Melissa Greaves @ 813-2908; School of Graduate Studies – Ms. Jessica Cote @ 675-7674; School of Medicine - Ms. Laura Mackowiak @ Ext. 675-5339.)

4. Private functions will not be allowed in the Student Union.

5. Consuming alcoholic beverages is not allowed unless there has been prior approval from the Chancellor of the Health Sciences Center.

6. Excessive noise cannot be tolerated.

7. No parking is allowed on the grassy areas or on the two (2) wide sidewalks leading up to the building. Parking is available in institution lots after 4:30 p.m. Monday through Friday and 24 hours on weekends and holidays.

8. Please make sure you place no kegs or keg coolers inside the building. They must remain on the porch.

9. All lights/ceiling fans must be turned off, inside and outside, and the building must be secured before you vacate the building. The security lights remain on at all times.

10. **It is a violation of university policy CM-10 to smoke on Health Sciences Center properties, including inside and outside the Student Union building.**

*These policies have been established by the Student Union Committee that consists of student and administrative representatives from each of the schools that make up the LSU Health Sciences Center.*

STUDENT UNION GENERAL INFORMATION

The key for the storage room containing tables and chairs may be obtained during normal business hours Monday-Friday From Ms. Laura Mackowiak in the Office of Student Affairs. If the office is closed, the key may be obtained by calling 675-6165. The same instructions apply to returning the key.
When given a schedule of functions at least two weeks in advance Environmental Services will provide cleanup after parties. It is the responsibility of the contact person from each school to notify Environmental Services directly.

For each special function, one student shall be designated to be responsible for making sure that everything is in order at the conclusion of the function. The contact person making the reservation will obtain the name of this person. All folding tables and stacking chairs must be placed back in storage after each special function. Access must not be blocked to any breaker type boxes, vents, air handler units, etc. in the 2 storage rooms outside the Student Union Building. The chairs must not be stacked so high as to block any of these boxes, etc. These rooms must be kept in order or the privilege of using these rooms for storage may be revoked.

There is a "panic" button for University Police on the curved kitchen counter. This panic button should be used only for emergency situations. There is an ac/heat override button on the curved kitchen counter to activate the ac/heat should it be needed.

There is a wall phone in the kitchen area (675-8990).

It is the responsibility of the designated responsible student to post a sign at the Student Union announcing special functions.

The Student Union was built and paid for using student fees. It must be treated with respect by all students.

<table>
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<tr>
<th>Bookstore</th>
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<td>Location:</td>
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<td>Hours:</td>
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The LSUHSC Bookstore is located in close proximity to the student lounge and exercise facility. It provides a selection of textbooks that are required for school courses and also many additional books that students may purchase to assist in their studies. There is a variety of greeting cards for students to
keep in touch with family and friends, which is really convenient when special occasions and birthdays coincide closely with student test schedules. The bookstore has a number of clothing items that bear the LSU emblem, which can be a great last minute gift idea. Finally, the LSUHSC Bookstore handles orders for graduation cap and gown rentals for the Health Sciences Center Graduation.

Mailroom
Location: G-314 (Ground floor, "B" Building)
Telephone: 318-675-5045
Hours: 9:00 a.m. to 4:30 p.m., Monday - Friday

The mailroom window is open during the hours listed above. Stamps are available at the window or at a vending machine adjacent to the mailroom window. The vending machine is available 24-hrs/day.

Cashier/Bursar
Location: 1-218 (First floor, "B" Building)
Hours: 8:15 a.m. to 3:15 p.m., Monday – Friday
Telephone: 318-675-5224

Students pay their registration fees at this office

Credit Union
Location: Ground floor of Hospital Complex
Hours: 7:30 a.m. to 4:00 p.m., Monday and Friday
8:30 a.m. to 4:00 p.m., Tuesday, Wednesday, Thursday

Campus Federal Credit Union offers many services including savings accounts, checking accounts, ATM services, overdraft protection, certificate accounts, direct deposit, on-line banking, and Visa with competitive rates and many types of low interest loans. The Credit Union operates with a very friendly and knowledgeable staff and is very convenient for students who seem to spend most of their day at LSUHSC-S.

Study rooms: Several rooms are available for use as study rooms. The Teaching Core Lab can be used for individuals and groups studying after hours. The Library has study rooms on the 2nd and ground floors. Those on the 2nd floor contain audiovisual equipment and are therefore kept locked. A key can be obtained at the circulation desk in exchange for your driver's license. The study rooms on the ground floor are not locked.

University Police (Campus Security)
Director: Mr. Willie Buffington
Location: G-213 in Med School/B1-13 in Hospital
Telephone: 318-675-6160 or 6165
CRIME HOTLINE: 318-675-3873 (53-UPD)
Hours: 24 hours a day, seven days a week
The Public Safety Department provides police and security services for the Health Sciences Center. The safety and security of all students, faculty, employees, patients and visitors here at LSUHSC-S are of utmost importance. The Public Safety Department, in conjunction with the other LSUHSC-S departments, strives to provide a safe campus. However, a truly safe campus can only be achieved through the cooperation of all persons who use, visit and work on the campus. You can contribute to a safe environment by supporting your University Police Department in its efforts and by utilizing preventative measures to reduce the opportunity for criminal acts.

The Public Safety Department is committed to courtesy and excellence and to the philosophy of community policing. Under community policing, Police Officers are assigned to patrol designated areas to develop a relationship with the various groups residing or working in these areas. Our officers are willing to meet with groups to define problems and to develop strategies to maintain a safe environment and conduct special programs. The Department provides many service-oriented functions to the University Health Sciences Center community.

The Public Safety Department is composed of the Patrol Division and the Special Services Division. The department provides police and security services twenty-four hours a day, seven days a week to all health sciences center patients, visitors, staff, faculty and students at all local facilities. These services consist of information, parking assistance, escort service and police protective and investigative services. Services are provided at all health sciences center facilities. University Police are sworn and commissioned police officers with the full range of police powers and are empowered to make arrests in matters concerning felonies and misdemeanors. Police officers are responsible for a full range of public safety services, including crime reports, investigations, medical and fire emergencies, traffic accidents, parking violations, enforcement of laws regulating alcoholic beverage consumption, the use of controlled substances, weapons and all other incidents requiring police assistance. Facilities Guards, secure parking lots, provide information and assistance to patients and visitors and enforce the visitor identification procedures during visiting hours. Police Dispatchers support both the University Police and Facilities Guards by monitoring the fire and security alarm systems and direct officers to trouble areas.

University Police compile information, prepare reports and submit incident reports to local and state law enforcement agencies. The department shares information on arrests and serious crimes with the Shreveport City Police and the Caddo Parish Sheriff’s Office. Computer checks of warrants for wanted persons can be conducted through computer link-up with the Louisiana Department of Public Safety. The terminal provides access to the National Crime Information Center and computer files of criminal justice systems within the 50 United States, the District of Columbia, Canada, the Commonwealth of Puerto Rico and the Virgin Islands.

In addition to shuttle bus service to the more distance parking lots, an ESCORT is available for staff, students, and faculty who desire an escort from the health sciences center to an assigned parking lot. By calling 675-6165 an escort can be summoned to your location to accompany you to any medical center parking lot. If arriving for work at night, call ahead for an officer to meet you at your assigned parking lot and escort you into the building.

University Police patrols offer motorist assistance. Services include jump-starting vehicles or contacting emergency road services upon request.

The Physical Plant Department maintains all LSUHSC-S buildings and grounds with particular emphasis on security and safety. Personnel from Physical Plant, the Safety Office and Public Safety
inspect facilities regularly. Prompt repair of safety and security hazards is accomplished as a top priority. Students, faculty, staff and visitors are encouraged to report hazards to Physical Plant (675-6319) or to the University Police (675-6165).

An integrated system of closed circuit cameras with video and digital recording, office personnel alarms, door alarms and card access system augment our officers in providing a safe and secure campus. LSUHSC-S facilities are open to the public during the day and evening hours. Visitor and guest entry is limited to the Hospital main lobby, Administration building main entrance, K-Wing and the Biomedical Research Institute Atrium. Employees, staff, faculty and students may enter the complex through card access controlled doors. Each person’s access card is individually programmed for specific doors as requested by the department. All persons associated with LSUHSC-S must wear their I.D. when on LSUHSC-S property.

CRIME PREVENTION

LSUHSC-S has no on-campus student housing. Crime prevention programs emphasizing security and what residents can do to help themselves be more secure are provided for staff and students who reside off-campus. LSUHSC-S University Police, local parish sheriff’s offices and the city police department crime prevention units may assist in personal residence security surveys. LSUHSC-S issues “timely warnings” when it considers a crime to pose an ongoing threat to students and employees. Timely warnings include email announcements, alert flyers, and bulletin board notices.

EDUCATIONAL PROGRAMS

Programs that emphasize personal safety and what students, faculty and staff can do to help them are available through the Public Safety Department. New employee and student orientations include presentations from the Director. Personal protection measures training may be arranged upon request. Police investigators are available or on-call to conduct criminal investigations, crime prevention surveys and personal protection awareness classes.

ILLEGAL DRUGS

LSUHSC-S does not condone possession, use or distribution of illegal drugs by anyone in any LSUHSC-S facility. Any person known to be possessing, using, or distributing such illegal drugs are subject to disciplinary action and possible arrest, imprisonment or fine according to LA State Law.

ALCOHOLIC BEVERAGES

LSUHSC-S seeks to encourage and sustain an academic environment that both respects individual freedom and promotes the health, safety and welfare of all members of its community. In keeping with these objectives, LSUHSC-S has established a policy governing the possession, sale and consumption of alcoholic beverages on LSUHSC-S property that conforms to LA State Law. Possession or consumption of alcoholic beverages on property owned or controlled by LSUHSC-S is prohibited. Under age possession and/or consumption of alcoholic beverages on property owned or controlled by LSUHSC-S is prohibited. Intentionally or knowingly selling or “furnishing” alcoholic beverages to
persons under age 21 or to persons obviously inebriated isn’t permitted on property owned or controlled by LSUHSC-S.

WEAPONS POSSESSION

In compliance with Louisiana State Law, the introduction of contraband on the grounds or in the facilities owned or controlled by LSUHSC-S is prohibited. Weapons include firearms, explosives, knives and straight razors.

CRIME HOTLINE

You may reach the University Police emergency CRIME HOTLINE by dialing extension 5-3873 (53-UPD). This line is for emergencies and to report suspicious persons or activities. 53-UPD can be reached from any telephone within the main LSUHSC-S complex.

THE CAMPUS SEX CRIMES PREVENTION ACT

Prompt reporting of sex offenses to the University Police is encouraged. While some may not think of forced sexual relations as rape, such action constitutes a serious crime and is a felony under LA Law. University Police will vigorously investigate all reports of sexual assault occurring within their jurisdiction and will help victims of sex assault off campus to contact the appropriate law enforcement authorities. Further assistance is available from the Dean of Students or the YWCA crisis line (318) 425-3628. Each institution must inform members of the campus community where they may obtain information concerning registered sex offenders who may be present on campus. The LA State Police Sex Offender and Child Predator Registry may be found at: http://www.lasocprl.lsp.org or by calling 1-800-858-0551.

SAVE (Sexual Assault and Violence Education Program)

The LSU Health Shreveport SAVE Program is the Sexual Assault and Violence Education Program that began in the Fall of 2011. This program is made possible through a grant funded by the Department of Justice Office of Violence Against Women Grant #2011-WA-AX-0013. Under this program an educational and prevention curriculum was developed and implemented that specifically addresses domestic violence, dating violence, sexual assault and stalking against any student, faculty member or employee at LSU Health Shreveport. Additionally, several awareness events are hosted throughout the year to highlight and address each of these specific issues. A victim advocate is on staff Monday-Friday, 8:00-4:30 and is located in room 3-344 in the School of Allied Health Professions building or can be reached at 318-813-SAVE (7283). The advocate can also be reached by contacting UPD after hours and on weekends. If you believe you are at risk or have been a victim of sexual assault, domestic/dating violence or stalking, you are encouraged to seek assistance through the SAVE office. For additional information visit the SAVE webpage www.lsuhscshreveport.edu/SAVE or “like” us on Facebook http://www.facebook.com/SAVEatLSUHealthShreveport to find out more about awareness events and activities.

LSUHSC-S Policies
A. Graduate School Policies

I. Graduate School Policy for Grade Appeal

Faculty who are members of the Graduate Faculty are qualified to provide instruction to students and to evaluate the performance of students in coursework and in research. A student who questions a grade in a Graduate School course exam or a final course grade may follow the course of action described below.

This policy applies to all courses offered in the School of Graduate Studies, including departmental courses and IDSP (interdisciplinary) courses

1. The student will first meet with the course director to resolve the issue within 10 working days of receiving the grade.

2. If the issue is not resolved to the satisfaction of the student, the student may appeal to the Graduate Advisory Council, in writing within 5 days of meeting with the course director. The appeal must clearly state the specific basis for the student’s dissatisfaction and the specific reparation sought. The Council will take into consideration 1) whether the method used to assign grades is the same for all students in the class, and 2) whether or not there is evidence of unjust or erroneous evaluation. The decision of the Council is final. If the decision reached requires changes in an official university record, all university regulations and procedures necessary to accomplish the change will be followed.

Approved by the Graduate Advisory Council, April 28, 2014

II. Graduate School Policy for Student Complaints

In accordance with CM-21, complaints from graduate students will be addressed in the following manner:

1. Informal conflict resolution

a. The student will discuss the conflict with his/her research advisor. If the student has not yet chosen a research advisor, the student will discuss the conflict with the departmental Graduate Program Director, or the department Head. If the conflict involves the research advisor, the student may discuss the conflict with the department Head.

b. If the student does not feel comfortable discussing the issue with his/her advisor or the department Graduate Program Director or the department Head, he/she may meet with the Graduate School Dean. The Graduate School Dean will meet with department Head of the department of the individual against whom the complaint has been made. The department Head will meet with the individual, and, if necessary with the student to resolve the issue. The department Head will notify the Graduate School Dean of the resolution of the issue.

c. If the student complaint concerns the department Head, the student may meet with the Assistant Dean for Student Affairs of the Medical School or the Graduate School Dean. The Assistant Dean for Student Affairs will discuss the complaint with the Graduate School Dean and other appropriate authorities and aid in resolution of the complaint.
2. Filing a formal complaint

If the conflict cannot be resolved informally, the student must make a formal complaint, in writing, to the LSUHSC-S website for Student Complaints. The written complaint must include the following:

a. A statement of the complaint
b. Identification of the individual/office against whom the complaint is made
c. The desired outcome.

The complaint will be submitted electronically to the Graduate School and to the Assistant Dean for Student Affairs of the Medical School.

Upon receipt of the written formal complaint, the Graduate School Dean must immediately notify the department Head. The department Head must take immediate action to resolve the conflict and inform the Graduate School Dean of the resolution.

If the conflict cannot be resolved by the department Head to the complainant’s satisfaction within a period of 10 working days or if the complaint concerns the department Head, the matter will be referred to the Graduate School Dean. The referral will include the complainant’s formal written complaint plus a statement of any actions taken by the department Head to resolve the issue.

The Graduate School Dean will either make a decision as to how the matter will be resolved or empanel an ad hoc committee of 3 members of the Graduate Advisory Council for this purpose. This committee will review the complaint, interview the appropriate individuals and provide a written evaluation with recommendations to the Dean within a period of 10 working days of receipt of the complaint. The Dean may choose to accept and follow the committee recommendation, or to render another decision. The decision will be communicated to all concerned parties in writing by the Dean.

If a serious complaint involves tenured faculty and cannot be resolved by the Graduate Advisory Council and the Graduate School Dean, the Graduate School Dean and the Chancellor will meet with the faculty member to resolve the issue.

Serious complaints include, but are not limited to, (1) physical harm or threatening with physical harm, (2) denial of opportunities for training or receiving lower grades based on race, gender, ethnicity or sexual orientation, and (3) violations of LSUHSC-S policy on sexual harassment.

Approved by Graduate Advisory Council, April 28, 2014

III. Individual Development Plan (IDP) Policy for Graduate Students and Postdoctoral Fellows at LSUHSC-S

A mission of LSUHSC-S is to adequately prepare graduate students and postdoctoral fellows to compete and participate successfully in a broad-based and evolving research and research-related economy. The Individual Development Plan (IDP) provides a planning process that identifies annual academic and scientific progress, professional development needs, and career objectives for all trainees.
NIH annual progress reports received on/after October 1, 2014 must include a section to describe how individual development plans (IDPs) are used to identify and promote the career goals of graduate students and postdoctoral researchers associated with the award. Reporting on the use of IDPs will be in the Research Performance Progress Report (RPPR), Section B, Question B.4. The RPPR will include a brief description of how and whether IDPs are used to help manage the career development of students and postdoctoral fellows associated with that award. A similar response is required for all T, F, K, R25, R13, D43 and other awards designed to provide training and professional development opportunities for graduate students and postdoctoral fellows.

Thus, use of an IDP is one mechanism for the Graduate School at LSUHSC-S to meet its training mission, and can also be reported on NIH grant annual progress reports. Inclusion of the actual IDP is not required in the progress report, simply a report of how it is used.

The purposes of the IDP for trainees are to:

1. Identify long-term career goals
2. Devise a plan for improving skills in order to achieve these goals
3. Set short-term goals to improve efficiency and productivity for the upcoming year, and repeat the process on an annual basis
4. Assure that the trainee and the mentor communicate on a regular basis about the trainee’s career goals and plans for achieving them.

The IDP benefits the trainee by helping them to identify short-term goals, to give trainees a clearer sense of expectations, and to help identify milestones along the way to achieving specific objectives. Both mentors and trainees are actively involved in developing and implementing the IDP. The IDP also provides a tool for communication between the trainee and the mentor (PI).

The IDP process allows trainees to conduct a self-assessment of the past year, to set training and career goals for the upcoming year, to set longer-term career goals, and to discuss these steps with their mentor. Standardized forms have been developed for use by graduate students and postdoctoral fellows at LSUHSC-S (see attached documents). As part of the plan, the mentor and the trainee agree to meet on a predetermined basis to review the plan and the goals and to determine whether timelines are being met. If timelines are not being met, modifications in the plan should be discussed and implemented. Additional resources and an in-depth career-planning tool can also be found at http://myidp.sciencecareers.org.

The completed IDP form for graduate students will also serve as the Annual Progress Report required by the School of Graduate Studies.

**Developing an IDP**

In order to complete an IDP, the first step is to conduct a self-assessment. The IDP form for LSUHSC-S includes a section in which the trainee summaries their research project and completes an annual progress report by answering several specific questions. The self-assessment tools on the myIDP website are helpful in further evaluating the individual’s values, interests and scientific skills. The myIDP website also offers a section on career exploration, in which the trainees learn about career options for Ph.D.-level scientists and then compare those options with their own interests, skills and values.
Setting goals is the next step in the process. The IDP form for LSUHSC-S includes a section for the trainee to think about their plans for the up-coming year. There is also a section devoted to setting short- and long-term career goals. At this stage, all students and postdoctoral fellows should discuss their career options with their mentors and outline strategies for achieving them.

Lastly, the students and postdoctoral fellows implement their plans, with the guidance and assistance of their mentors.

Graduate students will be required to complete the IDP every year of enrollment in the program, at the end of each academic year. The completed IDP forms will be retained in the student’s department and in the School of Graduate Studies. The trainees and the mentors will also retain copies so that progress throughout the training period can be evaluated.

Approved by the Graduate Advisory Council, April 16, 2015

IV. Embargo Requests for Theses and Dissertations

In order to protect intellectual property rights on information that is presented in a thesis or dissertation produced as a degree requirement, graduate students or their advisors may request a delay in the public release of a thesis or dissertation. Justification must be provided when making the request and supported by the student's faculty advisor and the Department Head.

To assure that the rights of both student author and faculty supervisor are respected, discussion of archiving should be done at the beginning of the research project. These issues may include prior-publication, potential or pending patents based on the research, prior contractual agreements with funding agencies, and sensitivity of the data.

An Embargo Request form (available from the Office of Graduate Studies) must be submitted to the Graduate School when the thesis or dissertation is submitted for the initial format check. All embargo requests will be reviewed by the Dean of the Graduate School. Embargo requests including contractual or security agreements with funding sources or research sponsor and those dealing with patents will also be reviewed and approved by the Office of Sponsored Programs and Technology Transfer and the Associate Dean for Research.

In the event of an embargo, the student will follow the established steps for binding the dissertation or thesis.

1.) Submit the final copies of the thesis or dissertation to the Office of the School of Graduate Studies
2.) Binding fees will be paid to the cashier.
3.) After payment, copies of the thesis or dissertation will be bound and retained in the Graduate School Office. After the embargo is released, the copies will be distributed appropriately, one copy to the Library, one copy retained in the Graduate School Office, one copy to the student’s Department Head and the remaining copies distributed as requested by the student.

Reasons for requesting and embargo:
1) **Prior publication concerns:** For individuals wishing to publish from a thesis or dissertation, the thesis or dissertation may be embargoed for a period of 6 months to 1 year. The embargo may be extended an additional 1 year with written justification. Requests to extend the embargo must be signed by both the student author (when appropriate) and the supervising professor and submitted to the Dean of the Graduate School using the *Embargo Request* form. The completed thesis or dissertation and all copies will be housed in Office of Graduate Studies for the period of the embargo. Upon completion of the embargo and/or publication of the thesis or dissertation, signature of the supervising professor, and approval by the Associate Dean for Research, the Embargo Request form will be submitted to the Graduate School. The Embargo Request form will be placed in the student's folder in the Graduate School Office and the bound copies of the thesis or dissertation will be distributed appropriately (see above).

2) **Protect on-going research program:** For researchers who do not wish to release a student’s thesis or dissertation for reasons related to the protection of novel, proprietary research data, the embargo can last for the duration of the research project or until a decision regarding patentability is made by LSU. For example, the dissertation contains intellectual proprietary property for which a patent could be filed. The completed thesis or dissertation and all copies will be housed in the Graduate School Office for the period of the embargo. Upon completion of the research project or once LSU determines patentability of the proprietary research, signature of the supervising professor, and approval by the Associate Dean for Research, the Embargo Request form will be submitted to the Graduate School to be placed in the student’s folder in the Graduate School Office. The Graduate School Office will distribute the bound thesis or dissertation copies appropriately (see above).

3) **Contractual or security agreement with funding source or research sponsor:** For theses or dissertations resulting from contractual or security agreements, the thesis or dissertation will be embargoed for the duration of the contract or research agreement and will be housed in the Graduate School Office. Upon completion of the contractual or research agreement, the Chair of the thesis/dissertation committee will submit the Embargo Request form to the Graduate School Office for verification of completion of the contract/research agreement. The Graduate School will route the Embargo Request Form to the Office of Sponsored Programs and Technology Transfer for verification of completion of the contract/research agreement and signature. The Associate Dean for Research will also verify the completion of the embargo. The verified Embargo Request Form will be submitted to Graduate School. The Graduate School will distribute the bound thesis or dissertation copies appropriately (see above). A copy of the completed Embargo Request Form will be retained in the student’s Graduate School folder.

4) **Protect potential patent opportunity:** Theses or dissertations leading to possible patents will be embargoed for the duration of the patent process and secured in the Graduate School Office. Upon completion of the patent process, the Office of Sponsored Programs and Technology Transfer and the Associate Dean for Research will verify the Embargo Request Form and forward it to the Graduate School who will ensure that the bound theses or dissertations are distributed appropriately (see above). A copy of the signed Embargo Request Form will be placed in the student’s folder in the Graduate School.

Approved by the Graduate Advisory Council, April 2015
B. Institutional Policies

Chancellor's Memoranda (CM)

I. NO Smoking Policy (CM-10)

It is the policy of Louisiana State University Health Sciences Center (HSC) to respect the rights of smokers and non-smokers alike. In addition, in accordance with laws and regulations cited below, the LSU Health Sciences Center reserves the right to prohibit smoking on its premises for reasons of public health and safety, improved customer satisfaction, the protection of environmentally sensitive materials and to address the concerns of individual non-smokers.

Effective July 1, 2010, LSUHSC-Shreveport properties is a smoke free organization. Smoking will be prohibited on all properties, leased or owned, of the Health Sciences Center. This policy is in effect for all employees, students, patients, and visitors of the Health Sciences Center.

On an ongoing basis, the Health Sciences Center will make resources available to help employees with their personal smoking cessation efforts. Furthermore, and as it relates to employees, it is the responsibility of supervisors to ensure that employees comply with the No Smoking Policy. Employees who violate the No Smoking Policy may be subject to disciplinary action, up to and including termination.

Clinical staff will inform patients of the policy and ensure they are in compliance. Health Sciences Center administrative and supervisory personnel are directed to advise persons of the no smoking policy when they encounter violations and to inform Human Resources and/or the LSUHSCS University Police Department (UPD) as appropriate.

II. CM-14 - Usage of Electronic Mail

The use of electronic mail shall be consistent with the instructional, research, public service, patient care and administrative goals and mission of the Health Sciences Center. Incidental and occasional personal use of electronic mail may occur when such use does not generate a direct cost to the Health Sciences Center.

The following examples are prohibited uses of E-Mail:

* Personal use that creates a direct cost to the Health Sciences Center.
* Personal use for monetary gain or for commercial purposes not directly related to Health Sciences Center business.
* Sending copies of documents or including the work of others in E-Mail communications that are in violation of copyright law.
* Obtaining or attempting to access the files or electronic mail of others. Capturing or attempting to open the electronic mail of others except as required to diagnose and correct delivery problems.
* Harassing, intimidating or threatening others through electronic messages.
* Constructing a false communication that appears to be from someone else. This is called spoofing.
* Sending or forwarding unsolicited E-mail to lists of people you do not know. This is called spamming. Bulk mailing is almost always considered spam. It places considerable strain on the E-mail system. Bulk mailing of information can be selectively used for business related communication.
but must be approved at a level appropriate to the scope and content of the information. Authorized bulk mailings will be tagged with the statement, This message has been authorized by LSU Health Sciences Center administration for mass distribution as a service to our faculty, staff and students.

* Sending or forwarding chain letters.
* Violation of the above policy in any part may be sufficient grounds for disciplinary action and/or termination.

Signed: John C. McDonald, M.D. Chancellor
June 1, 2001

III. CM-18 - Information Technology (IT) Infrastructure

I. Scope

This policy applies to any person or any device that connects to the LSUHSC-S IT infrastructure and is meant to augment, but not replace, any existing policy, laws, or regulations that currently refer to computing and networking services.

Any policy at a division or department level of the organization should build upon the foundation of this policy, and may be more restrictive than this policy, but should not be less restrictive.

All IT infrastructure strategic decisions shall be in concert with the appropriate leadership in the affected areas.

LSUHSC-S Operational Computer Services provides management and operation of the IT infrastructure in partnership and cooperation with the major divisions of LSUHSC-S. All IT infrastructure designs must be coordinated and approved by the Assistant Dean for Information Technology. All new network cable plants must adhere to the cabling and wiring standards, and must be installed by the Telecommunications Section of Auxiliary Enterprises.

The owner of an LSUHSC-S user ID shall be held accountable for any violations associated with that ID, regardless of the ownership or the location of the equipment where the violation may have occurred.

II. Purpose

The LSU Health Sciences Center Shreveport (LSUHSC-S) information technology (IT) infrastructure supports mission-critical and business-critical services for patient care, education, public service, research, and administration.

Staff, researchers, clinicians, students, and faculty depend on the LSUHSC-S IT infrastructure for the electronic classroom, telemedicine, healthcare, clinical and administrative database applications, high-speed data and image exchange, and collaborative initiatives with both internal and external entities.
The purpose of this document is to institute an enforceable policy to protect the performance, integrity, security, reliability, and continuity of vital services that rely on the LSUHSC-S IT infrastructure through good citizenship and legal and ethical use.

Definitions and Terms

Authorized Use - Use of the IT infrastructure must be consistent with the instructional, research, public service, patient care, and administrative goals of LSUHSC-S, and for the express purpose of conducting business related to one's job duties.

Authorized User - Staff, student, faculty, contractor, vendor, or entity that has an official affiliation with LSUHSC-S and has been assigned a network user ID and/or has been specifically authorized to use an infrastructure resource by the group responsible for operating the resource.

Business Use/Need - That which is consistent with one's role in the organization.

Operational Computer Services (or "Computer Services") - The LSUHSC-S central computer services group that provides non-academic IT support such as the network infrastructure, administrative applications, web services, E-mail infrastructure, IT security, etc. Computer Services reports to the Assistant Dean for Information Technology.

LSUHSC-S Information Technology Infrastructure - Information technology (IT) is a compilation of products and services that turn data into functional, meaningful, available information. The IT infrastructure is the network, the communication physical media, the protocols, the associated software/applications/firmware, the hardware devices that provide connectivity, and all equipment attached thereto regardless of ownership or location.

Network - A network is that system of products and services by which all computers and peripherals are connected. Due to the current need for high-speed networking, it is critical that cables and wiring adhere to industry wiring standards to provide a reliable service.

Network User ID - A network account assigned by Computer Services Security that provides authentication and access to the LSUHSC-S network and applications on the IT infrastructure. A user must fill out an account application through his/her local supporter and sign a statement attesting to having read and understood the proper use of his/her user ID and password.

Academic Computing - Provides consulting services for the research and education missions of LSUHSC-S in areas such as statistics, electronic course design, electronic grading, and distance education. Academic Computing reports to the Assistant Dean for Information Technology.

III. Policy

Use of the LSUHSC-S IT infrastructure is a revocable privilege granted to those with an official affiliation with LSUHSC-S. Access to specific services on the IT infrastructure is based on a business need. Access to the IT infrastructure, and any components on the infrastructure, requires authorization. The LSUHSC-S IT infrastructure must be used in a manner consistent with protecting patient care and the critical business functions of the organization. No one should perform any activity on the IT infrastructure that undermines the public's confidence in LSUHSC-S to fulfill its mission.
Online Privacy Statement

Authorized LSUHSC-S staff may, at any time, for any reason, or without reason, access any device connected to the LSUHSC-S network such as a computer, its hard drives and component parts, monitor all contents, copy (download) any and all contents and use any such contents, for any purpose it deems necessary.

All users are advised that by using a computer on the LSUHSC-S IT infrastructure, they acknowledge that they are subject to the terms of this policy and that they give their unrestricted consent to the monitoring, copying, and unrestricted distribution of any transmission/communication or image generated, received by, sent by, or stored in the computer. Such use is subject to this same policy even when access to the LSUHSC-S network is through dial-up or the Internet and even when the computer that is used is personal property and not the property of LSUHSC-S. Such computer may be scanned, and network access may be denied.

Acceptable Use Statement

All users of the IT infrastructure are expected to exhibit responsible behavior and shall:

* Comply with all federal and state laws, LSUHSC-S rules and policies, terms of computing contracts, and software licensing rules.
* Obtain authorization to use LSUHSC-S computing resources.
* Actively participate and cooperate with Computer Services in the protection of the IT infrastructure against threats. For example, not opening E-mail from an unknown source, safeguarding passwords, reporting any violations of the acceptable use statement to the local support staff, and cooperating with the local support staff to keep security patches up to date on applications and computers.
* Take reasonable precaution to avoid introducing computer viruses into the LSUHSC-S network. For example, files downloaded from the Internet, received from E-mail, or brought in from outside LSUHSC-S must be scanned with approved virus-scanning software. Anyone suspecting they may have a computer virus should contact the Help Desk (5-5470) immediately.
* Erase the hard-disk drive of any computer scheduled for surplus using an approved method as described by the State Office of Information Technology. All users of the IT infrastructure shall NOT:
  * Engage in any activity that jeopardizes the availability, performance, integrity, or security of the IT infrastructure. Examples would be installation of a server without the express permission of Computer Services; using peer-to-peer (P2P) applications that take up bandwidth for the downloading of music, games, and video; releasing computer viruses or worms; and deliberately or recklessly overloading access links or switching equipment through the use of streaming media such as web radio and other mechanisms.
  * Use computing resources in a wasteful manner that creates a direct cost to LSUHSC-S. Some examples of waste are unnecessary backgrounds on E-mail taking up valuable storage space, spending time on the Internet for personal use, playing computer games, engaging in non-business related online chat groups, or printing multiple copies of documents.
  * Use LSUHSC-S IT resources for personal monetary gain or commercial purposes not directly related to LSUHSC-S business or for functions that are not related to one's job.
  * Install, copy, or use any software in violation of licensing agreements, copyrights, or contracts.
  * Send copies of documents or include the work of others that are in violation of copyright law in electronic communications.

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* Obtain or attempt to access the files or electronic mail of others unless authorized by the owner or as required for legitimate business need, security issues, or investigative purposes. Disclosure of any information obtained must abide by existing policy, laws, and regulations.
* Harass, intimidate, or threaten others through electronic messages.
* Construct a false communication that appears to be from someone else.
* Send or forward unsolicited E-mail to lists of people you do not know. It places considerable strain on the E-mail system. Bulk mailing of information can be selectively used for business-related communication but must be approved at a level appropriate to the scope and content of the information. Contact Information Services (5-5408) for help with bulk mailings.
* Send, forward, or reply to E-mail chain letters.
* "Reply to all" to mass E-mail mailings.
* Retransmit virus hoaxes.
* Directly connect to LSUHSC-S computers by dialing to a modem installed on such computer or by using any other unapproved method.
* Create or transmit (other than for properly supervised and lawful research purposes) any offensive, obscene or indecent images, data or other material, or any data capable of being resolved into obscene or indecent images.

IV. Amendments and Revisions

This policy shall be amended or revised as the need arises.

V. Enforcement of Policy

Noncompliance with this policy could result in disciplinary action up to and including termination of employment, dismissal from an academic program, and civil or criminal liability.

This memorandum is effective January 16, 2004.
Signed: John C. McDonald, M.D. Chancellor

IV. CM-21 - Student Responsibilities and Rights

Preamble

The Louisiana State University Health Sciences Center (LSUHSC) in Shreveport is dedicated to providing its students, residents, faculty, staff, and patients with an environment of respect, dignity, and support. The diverse backgrounds, personalities, and learning needs of individual students must be considered at all times in order to foster appropriate and effective teacher-learner relationships. Honesty, fairness, evenhanded treatment, and respect for students’ physical and emotional well being are the foundation of establishing an effective learning environment.
**Student Responsibilities**

Students are responsible for complying with all policies/procedures, rules and regulations and other information published by the Health Sciences Center. In addition, students are expected to abide by all federal, state and local laws.

Students are expected to:

A. Exhibit the highest standard of personal, academic professional and ethical behavior.
B. Treat faculty, staff, peers, clients, patients, and others with dignity and respect.
C. Abide by the Code of Conduct that applies to their specific professional discipline.

Students who violate any of the above when involved in any school or school related activity/function, whether on or off campus, will be subject to disciplinary action.

**Students Rights**

Mistreatment and abuse of students by faculty, residents, staff or fellow students is contrary to the educational objectives of the LSUHSC in Shreveport and will not be tolerated. Mistreatment and abuse include, but are not limited to, berating, belittling, or humiliation; physical punishment or threats; intimidation; sexual harassment; harassment or discrimination based on race, gender, sexual preference, age, religion, physical or learning disabilities; assigning a grade for reasons other than the student’s performance; assigning tasks for punishment or non-educational purposes; requiring the performance of personal services; or failing to give students credit for work they have done.

Students have rights as guaranteed by the U.S. Constitution and all appropriate federal, state and local laws. Primary among those is the right to a fair and impartial hearing, if the student is accused of misconduct or violating university regulations. Additionally, students have the right to file a complaint for alleged mistreatment. The Health Sciences Center has existing policies and procedures that relate to the following: financial aid; sexual harassment; final grade appeal; student housing; parking; drugs; alcohol; firearms; student’s access to records, and privacy; computer/internet use; dress and professional conduct; health insurance; and liability insurance. Issues that relate to these specific policies, which may be found on the Health Sciences Center website, should be addressed to the appropriate office. The Office of Student Affairs of the appropriate school can help students with information about those policies.

**Procedure for Addressing Student Complaints**

If the Health Sciences Center or specific school already has a policy concerning the student’s complaint, procedures indicated in that policy should be used; if the Health Sciences Center or specific school has no specific policy, the following procedure should be used.

Specific school policies should include the following basic elements:

Informal Conflict Resolution
1. Discuss the conflict with the person against whom the complaint is made. In the event that the complainant does not feel comfortable doing so, the complaint should be directed to the Office of the Assistant Dean for Student Affairs of the specific school.

2. The Assistant Dean of Student Affairs will meet with the individual against whom the complaint has been made in an effort to resolve the conflict.

**Filing a Formal Complaint**

If the conflict cannot be resolved informally, the complainant must make a formal written complaint to the Assistant Dean of Student Affairs. The written complaint must include the following:

a. A statement of the complaint,
b. Identification of individual/office against whom the complaint is made,
c. The relief sought,
d. The complaint must be signed by the complainant.

Upon receipt of the formal written complaint, the Assistant Dean of Student Affairs of the appropriate school must take immediate action to resolve the conflict.

If the conflict cannot be resolved to the complainant’s satisfaction within a period of 10 working days, the matter will be referred to the Associate Dean for Academic Affairs of the Health Sciences Center by the Assistant Dean. The referral will include the complainant’s formal written request plus a statement of actions taken by the Assistant Dean to resolve this matter.

**Referral to the Associate Dean for Academic Affairs**

The Associate Dean for Academic Affairs:

- May make a decision as to how the matter can be resolved. This decision shall be communicated to all concerned parties in writing;

- If for any reason the Associate Dean for Academic Affairs chooses not to render a decision, he/she may empanel an ad hoc committee comprising three faculty members, at least one of which is from the pool of elected members of the Faculty Senate and two students appointed by the appropriate Student Government Association President. The Committee shall meet in an effort to resolve the matter within a period of 10 working days. Neither party shall be represented by attorneys in the hearing. The hearing shall be recorded (but not the deliberations) for use by the Associate Dean for Academic Affairs if needed. The Committee may meet with the concerned parties and others who can provide information that is helpful in resolving the matter. The Committee meetings will be closed, and information provided during the meeting shall be held in strictest confidence.

The Committee shall reach a decision as to the resolution of the matter and make its written recommendation to the Associate Dean for Academic Affairs within five working days. The Associate Dean for Academic Affairs, upon receipt of the Committee’s recommendation, will make a decision.
and communicate this decision in writing to all concerned parties and the Dean of the appropriate school. The decision of the Associate Dean for Academic Affairs is final and non-appealable.

This memorandum is effective January 14, 2005.

John C. McDonald, M.D.
Chancellor and Dean

For graduate students, when CM-21 refers to the Assistant Dean for Academic Affairs, the Dean for Graduate Studies should be substituted.

V. Conflict of Interest in Research (CM-23)

Increasingly, financial incentives involved in research may lead to conflicts of interests. This policy was developed to promote objectivity in research by establishing standards to ensure that there is no reasonable expectation that the design, conduct, or reporting of research, will be biased by any conflicting financial interest of an investigator.

Thus, as a graduate student involved in research, you must complete the institutional Conflict of Interest disclosure form every year, at the beginning of the academic year on July 1. Instructions are found on the Office of Legal Affairs web site in the 'my HSC' section. A reminder to obtain training and complete the disclosure form will be sent to you through the e-mail system. If you have any questions, contact your mentor, or Head of your Department.

C. Other LSUHSC-S Policies

I. INCLEMENT WEATHER POLICY

When weather conditions render surface transportation hazardous, the Dean of the Medical School may declare a weather emergency. A declared weather emergency has the effect of establishing a holiday routine in the Health Sciences Center. It cancels classes, closes nonessential offices, and reduces staffing to the level necessary to support essential operations in the School and Hospital. The decision to declare such an emergency rests solely with the Dean or his designated representative. Local radio and television stations will be informed if the Dean declares a weather emergency. Members of the Student Executive Council will be informed through the President of the Student Executive Council (who confirms the action with the Dean for Student Affairs). The Student Executive Council members from the Graduate School will communicate this information to all other graduate students.

II. DRESS GUIDELINES
A. PURPOSE

To establish minimal acceptable standards of dress for employees of Louisiana State University Health Sciences Center – Shreveport.

B. POLICY

1. LSUHSC-S identification badges must be worn while on duty, displayed on the front portion of the outer garment, clearly visible and not obscured in any way. (See Administrative Directive 2.8.3.)

2. No sweat suits, shorts, athletic wear or non-approved lab jackets/scrub suits may be worn (see individual department policy for definition.)

3. No hats, bandannas, or headgear, including earphones, radios, etc. may be worn unless required for safety or as part of the uniform.

4. No sleeveless (muscle) shirts may be worn. T-shirts may be worn in some departments (see department dress code) but must be free of slogans and objectionable language.

5. Halter or low-cut tops are not permitted.

6. See-through apparel is not allowed.

7. Jeans, including colored jeans, may be worn if the employee has no patient contact as part of their duties. They should be neat, clean and free of holes or patches. Individual departments may elect to ban jeans.

8. No shorts or spandex attire shall be permitted. Skorts and culottes are permitted if they are appropriate in length and present a professional appearance.

9. Shoes are to be neat and clean. Tennis shoes are acceptable unless not permitted by safety regulations. Open-toed shoes may be worn unless prohibited by Infection Control or Safety regulations. Thongs are prohibited.

10. Make-up, jewelry, and cologne/perfume shall not be excessive so as to cause disruption to patients or co-workers.

11. Novelty buttons and badges with slogans are prohibited.

12. Hairstyles, beards and mustaches are to be clean, well groomed and conform to infection control and safe work practices.

13. Dress and personal hygiene, which are considered in poor taste or disruptive to an organization, may be addressed by the supervisor as a violation.

14. Specific department requirements shall be followed.
III. SOCIAL MEDIA GUIDELINES

In general:

1. LSUHSC-S resources should be used only for school-related purposes. This includes school e-mail accounts, and any school approved/affiliated web presence.
   a. Web presence is herein defined as any forum, page, social media outlet, RSS feed, or other information outlet accessible from electronic devices on the Internet.
2. Protected Health Information (PHI) must remain protected, irrespective of the technology used.
3. Faculty approval is required in order to create any web presence that represents the school, or claims affiliation.
4. Appropriateness – messages/posts should be appropriate for school-related communication. Offensive language, bullying, and defamatory information are all considered unprofessional. Students are expected to maintain professionalism standards when using school-related/affiliated forms of social media.
5. Students have an obligation to uphold professional standards “online,” and should behave “online” in a manner that reflects expected behavior in real life.

E-mail:

1. Impersonating another individual’s account is considered fraud.
2. Students should limit the size of messages to respect file-size limitations.
3. Message distribution should limited to “targeted” recipients.
4. Humor – humorous messages (especially political, religious, etc.) are not appropriate for general (mailing list distribution) transmission in school e-mail.

Social Media:

1. Staff shouldn’t be specifically named or nicknamed. Impersonating another individuals account is considered fraud
2. Students should ensure that privacy settings are enabled
3. It is highly recommended that your account be only visible to friends.
4. Images
   a. Don’t post images of classmates/staff that are unbecoming, unprofessional, or represent the school in a negative light.
   b. Students are responsible for material that is purportedly self-affiliated (including, but not limited to, images/text/drawings, etc.). If a friend posts a picture of you online, you are responsible for requesting the removal of the image if it is unprofessional.

5. Posts/Messages
   a. Posts related to schoolwork, school functions, staff, or other students should remain professional, and should not portray the school in a negative light.
   b. i. Approved = “I’m so sick and tired of studying”
ii. Inappropriate = “I hate Dr. Smith’s lectures, I can’t understand a word he says.”

Violations - A violation of these appropriate use guidelines will result in immediate referral to the Head of the appropriate Department and the Dean of the School of Graduate Studies

STATE AND HEALTH SCIENCES CENTER REGULATIONS

The following regulations concern the definition of "Contraband" and its prohibition on campus, and an Administrative Directive on Substance and Alcohol Abuse. It is extremely important that you carefully read each of these regulatory statements, and follow them to the letter.

CONTRABAND R.S. 14:402.1

It is unlawful for any person to introduce or attempt to bring into or upon the grounds or buildings of any state owned or administered hospital or medical facility except as authorized by the Dean or Administrator any of the following articles hereby declared contraband:

1. Any intoxicating beverages or any beverage that causes an intoxicating effect. (Examples - beer, liquor, wine, alcohol).

2. Any narcotic or hypnotic or exciting drug of any kind (Examples - heroin, cocaine, marijuana, barbiturates, amphetamines, sleeping pills, some nasal inhalers).

3. Any firearm or other dangerous weapon (Examples - gun, pocket knife with a blade exceeding six inches, razor, nunchaku, sap, club).

Penalty - Violators of this statute, R.S. 14:402.1, can upon conviction be imprisoned up to three years with hard labor.

If you know a fellow worker, patient or visitor who in violation of this law, please contact the University Police at 6160 or 6165. You have a right to a safe and secure workplace. Protect that right.

DRUG AND ALCOHOL ABUSE PREVENTION PROGRAM

I. Introduction

Purpose: The Drug Free Workplace Act of 1988 requires employers who contract with or receive grant funds from federal agencies to insure they meet certain requirements for providing a drug free
workplace by good faith effort. The Drug Free School and Communities Act of 1989 requires that as a condition for receiving funds or any other financial assistance under any federal program, an institution of higher education must certify that it has adopted and implemented a program to prevent the unlawful possession, use or distribution of illicit drugs or alcohol abuse by students or employees.

Provision: The performance of employees/students who engage in substance abuse in the health sciences center environment is or may be adversely affected. In an academic health science setting, an impaired employee's job related activity can result in errors deleterious to the missions of the institution.

Because of the potential for errors of omission or commission and because unlawful manufacture, distribution, dispensing, possession or use of a controlled substance violates state and/or federal laws, it is the policy of Louisiana State University Health Sciences Center in Shreveport to maintain an environment free of drugs and alcohol. The illegal use, possession or distribution of illicit drugs and alcohol abuse by students and employees on the university premises or as any part of its activities is prohibited.

All employees, students and faculty, whether paid, unpaid or gratis must understand that continued employment is contingent upon willingness to comply with the Drug Free Workplace Act of 1988 and the Drug Free Schools and Communities Act of 1989. Director of Human Resources Management within five (5) days following a conviction of any drug related criminal charge which is work related. The Director will notify the Grants Office which must comply with the provisions for notice to the federal funding agency or federal contractor within ten (10) days. Notice to the federal agency or federal contractor should include the sanctions imposed on the employee convicted of a drug related work related crime. All students convicted of a drug related criminal offense which is health sciences center related must report the circumstances within five (5) days of the conviction to the Assistant Dean for Student Affairs - School of Medicine, Dean for Graduate Studies - School of Graduate Studies, or the Director of Student Affairs - School of Allied Health Professions, depending on the school in which the student is enrolled.

Scope: Laboratory drug tests of appropriate body fluid specimens may be required of an employee/student should there be reasonable suspicion to believe a chemical abuse problem exists. Such reasonable suspicion to believe such a problem exists may include, but is not limited to, the appearance of impairment or intoxication the job or aberrant behavior. Testing may also be required after an accident, near accident or incident.

**Louisiana and the US Drug Enforcement Administration Classify Drugs in Schedules**

Schedule I and II drugs consist of opiates, opium derivatives, hallucinogenic substances, depressants and stimulants.

Schedule III drugs consist of stimulants, depressants, nalorphine, limited narcotic drugs, anabolic steroids and muscle building substances.

Schedule IV drugs consist of barbital, phenobarbital, mebutames, etc.

Schedule V drugs consist of narcotic drugs containing nonnarcotic active medicinal ingredients.
Penalties for Possession with Intent to Distribute, Dispense or Manufacture

Heroin: 20 years (no minimum mandatory); $1 million fine; 3 years min. mandatory (Less than 100 grams) Term of Supervised release; $50 mandatory assessment

Cocaine: 20 years (no minimum mandatory); $1 million fine; 3 years min. mandatory (Less than 500 grams) Term of Supervised Release; $50 mandatory assessment

Cocaine Base: 20 years (no minimum mandatory); $1 million fine; 3 years min. mandatory (Less than 5 grams) Term of Supervised Release; $50 mandatory assessment

Phencyclidine (PCP): 5 years (no minimum mandatory); $250,000 fine; 2 years min. mandatory (Less than 10 grams pure: Term of Supervised Release; $50 mandatory assessment or less than 100 grams diluted)

Marijuana: 5 years (no minimum mandatory); $250,000 fine; 2 years min. mandatory (Less than 50 kilograms) Term of Supervised Release; $50 mandatory assessment

Methamphetamine: 20 years (no minimum mandatory); $1 million fine; 3 years min. mandatory (Less than 10 grams, or Term of Supervised Release; $50 mandatory assessment less than 100 grams diluted)

Any Schedule III Controlled: 5 years (no minimum mandatory); $250,000 fine; 2 years min. mandatory Substance; Depressants Term of Supervised Release; $50 mandatory assessment

Any Schedule IV: 3 years (no minimum mandatory); $250,000 fine; 1 year min. mandatory Controlled Substance Term of Supervised Release; $50 mandatory assessment

Any Schedule V: 1 year (no minimum mandatory); $100,000 fine; $25 mandatory Controlled Substance assessment (misdemeanor)

Employee/student assistance programs are available for faculty, staff and students. These programs provide options for formal referral, informal suggestions and/or self-referral for substance or alcohol abuse problems.

Disciplinary Sanctions: The Health Sciences Center will impose disciplinary sanctions on students and employees (paid and unpaid) who violate the policy. Among the disciplinary sanctions which may be imposed on students are the following: reprimand, probation, restriction, suspension, expulsion and referral for prosecution. Among the disciplinary sanctions which may be imposed on employees are the following: oral warning, written reprimand, suspension, termination and referral for prosecution. Faculty members will be disciplined in accordance to Bylaws and Regulations. The Health Sciences Center may require completion of an appropriate rehabilitation program for continued participation in Health Sciences Center programs or employment.

Rehabilitation
1. Management may, as a condition of continued employment, require the employee to enter a treatment/rehabilitation program. If time off is required for the treatment program, the Health Sciences Center's leave of absence and sick leave policies will apply. The employee must provide permission for the treatment center to provide continuing communication and regular reports to the Health Sciences Center's Medical Review Officer and Director of Employee Assistance Program.

2. After successful completion of the treatment/rehabilitation program, the employee must continue with an appropriate follow-up program that usually runs one to three years. The follow-up treatment program will be determined by the treatment/rehabilitation center and the Health Sciences Center's Medical Review Officer and Director of Employee Assistance Program.

3. Withdrawal or failure to successfully complete the treatment program will result in immediate termination.

4. Submission to periodic random drug screens upon request is required and is a condition for continued employment.

5. Personnel returning to work will not be allowed to have possession of narcotic keys nor to work with controlled substances until the employee demonstrates to the satisfaction of management that he/she can handle narcotics.

6. Any continuing evidence of chemical abuse will result in notification to state or federal law enforcement agencies and/or National Licensing Boards, if appropriate.

**Administrative Directive on Substance and Alcohol Abuse**

A. Purpose: The Drug Free Workplace Act of 1988 requires employers who contract with or receive grant funds from federal agencies to insure they meet certain requirements for providing a drug free workplace by good faith effort. The Drug Free School and Communities Act of 1989 requires that as a condition for receiving funds or any other financial assistance under any federal program, an institution of higher education must certify that it has adopted and implemented a program to prevent the unlawful possession, use or distribution of illicit drugs or alcohol abuse by students or employees. While these are two separate pieces of federal legislation they do have common goals and expectations which we have attempted to capture in a single policy. The following are the provisions of the LSUHSC-S policy to provide for these lawful requirements. Failure to follow stipulated guidelines could result in institutional losses of federal support to research and education.

B. Provision: The performance of employees/students who engage in substance abuse in the health sciences center environment is or may be adversely affected. In an academic health science setting, an impaired employee's job related activity can result in errors deleterious to the missions of the institution. Because of the potential for errors of omission or commission and because unlawful manufacture, distribution, dispensing, possession or use of a controlled substance violates state and/or federal laws, it is the policy of Louisiana State University Health Sciences Center in Shreveport to maintain an environment free of drugs and alcohol. The illegal use, possession or distribution of illicit drugs and alcohol abuse by students and employees on the university premises or as any part of its activities is prohibited.
All employees and students whether paid, unpaid, or gratis must understand that continued employment is contingent upon willingness to comply with the Drug Free Workplace Act of 1988 and The Drug Free Schools and Communities Act of 1989.

All employees are required to notify the Director of Human Resources Management within five (5) days following a conviction of any drug related criminal charge which is work related. The Director will notify the Grants Office which must comply with the provisions for notice to the federal funding agency or federal contractor within ten (10) days. Notice to the federal agency or federal contractor should include the sanctions imposed on the employee convicted of a drug related work related crime. All students convicted of a drug related criminal offense which is health sciences center related must report the circumstances within five (5) days of the conviction to the Assistant Dean for Student Affairs. Alcohol abuse and the illegal use and abuse of other drugs are associated with numerous health, safety and social problems. The more common health problems seen affect the cardiovascular system resulting in heart disease or stroke; central nervous system involvement which leads to deteriorating mental as well as physical capabilities, gastrointestinal system involvement producing irritation, ulcers and cirrhosis of the liver. The fetal alcohol or drug abuse syndrome is a particularly serious and life threatening condition to the unborn child. Mental health and social problems are perhaps one of the more common manifestations of alcoholism and drug abuse and lead employees/students to the markedly impaired in their performance.

The employees and students use and abuse of these substances will prevent this institution from accomplishing its goal that is the provision of the highest quality medical care. It is for these reasons we are mandating a "Drug Free" campus.

Employee/student Assistance Programs for faculty, staff and students are available. These programs provide options for formal referral, informal suggestion and/or self-referral for substance or alcohol abuse problems.

The provisions of this policy will be disseminated to each faculty member, employee and student at time of employment, orientation, and a copy placed in each Employee Handbook.

C. Scope: Laboratory drug tests of appropriate body fluid specimens may be required of an employee/student should there be reasonable suspicion to believe a chemical abuse problem exists. Such reasonable suspicion to believe such a problem exists may include, but is not limited to, the appearance of impairment or intoxication on the job or aberrant behavior. Testing may also be required after an accident, near accident or incident.

D. Procedures

1. Any employee/student who suspects substance abuse by another employee should report this to their supervisor, department head, or appropriate campus administrator.
2. Any report of suspected chemical abuse on the part of an employee/student will be reported to the Occupational Health Nurse or the Employee Assistance Program person and will be treated in a confidential manner and investigated thoroughly by the Occupational Health Nurse or the Employee Assistant Program person.

3. Should an investigation indicate the probability of chemical abuse, the employee/student in question will be confronted with the information and provided an opportunity to respond.
4. Refusal to submit for testing when requested may result in immediate termination of employment.

5. All evidence may be submitted to state or federal law enforcement agencies and/or National Licensing Boards, if appropriate.

E. Disciplinary Sanctions: The Health Sciences Center will impose disciplinary sanctions on students and employees (paid and unpaid) who violate the policy. Among the disciplinary sanctions which may be imposed on students are the following: reprimand, probation, restriction, suspension, expulsion and referral for prosecution. Among the disciplinary sanctions which may be imposed on employees are the following: oral warning, written reprimand, suspension, termination and referral for prosecution. The Health Sciences Center may require completion of an appropriate rehabilitation program for continued participation in Health Sciences Center programs or employment.

F. Rehabilitation

1. Management may, as a condition of continued employment, require the employee to enter a treatment/rehabilitation program. If time off is required for the treatment program, the Health Sciences Center's leave of absence and sick leave policies will apply. The employee must provide permission for the treatment center to provide continuing communication and regular reports to the Health Sciences Centers Medical Review Officer.

2. After successful completion of the treatment/rehabilitation program, the employee must continue with an appropriate follow-up program that usually runs one to three years. The follow-up treatment program will be determined by the treatment/rehabilitation center and the Health Sciences Center's Medical Review Officer.

3. Withdrawal or failure to successfully complete the treatment program will result in immediate termination.

4. Submission to periodic random drug screens upon request is required and is a condition for continued employment.

5. Personnel returning to work will not be allowed to have possession of narcotic keys nor to work with controlled substances until the employee demonstrates to the satisfaction of management that he/she can handle narcotics.

6. Any continuing evidence of chemical abuse will result in notification to state or federal law enforcement agencies and/or National Licensing Boards, if appropriate.

Administrative Directive on Sexual Harassment

A. Policy: LSU Health Sciences Center - Shreveport is committed to providing a professional work environment that maintains equality, dignity and respect for all members of its community. In keeping with this commitment, the Health Sciences Center prohibits discriminatory practices, including sexual harassment. Any sexual harassment, whether verbal, physical or environmental, is unacceptable and will not be tolerated. The purpose of this policy is to define sexual harassment and to establish a
procedure whereby alleged sexually harassed employees, staff and students may lodge a complaint immediately.

B. Definition: Sexual harassment is illegal under federal (section 703 of Title VII of the Civil Rights Act of 1964), state and local law. It is defined as any unwelcome sexual advance, request for sexual favors or other verbal or physical conduct of a sexual nature when:

1. Submission to the conduct is made either explicitly or implicitly a term or condition of an individual's employment;
2. Submission to or rejection of such conduct by an individual is used as basis for an employment decision affecting the individual; or
3. The conduct has the purpose or effect of unreasonable interfering with the individual's performance or of creating an intimidating, hostile or offensive working environment.

Types of behavior that constitute sexual harassment may include, but are not limited to: unwelcome sexual flirtations, advances or propositions; derogatory, vulgar or graphic written or oral statements regarding one's sexuality, gender or sexual experience; unnecessary touching, patting, pinching or attention to an individual's body; physical assault; unwanted sexual compliments, innuendo, suggestions or jokes; or the display of sexually suggestive pictures or objects.

C. Procedures: Any member of the Health Sciences Center Community who has a sexual harassment complaint against a supervisor, coworker, visitor, faculty member, student or other person, has the right and obligation to bring the problem to Health Sciences Center's attention. Any supervisor who witnesses such conduct or receives a complaint must report the incident to Human Resource Management, an appropriate administrator or the Dean of the respective school. It is the responsibility of all LSU Health Sciences Center employees in a supervisory capacity to insure that the work/academic environment is free from sexual harassment.

A staff member who believes he or she has been sexually harassed, should immediately report the incident to the Assistant Director of Employee Relations, Human Resource Management (318-675-5611) or to the Director of Human Resource Management (318-675-5610) or to an appropriate administrator or the Dean of the School of Graduate Studies. In addition, staff members may report the incident to any supervisor. A recipient of such a complaint shall notify Human Resource Management.

The Department of Human Resource Management will be responsible for investigating complaints of sexual harassment occurring between staff members; complaints made by staff against students; and complaints made by staff against other third parties. Human Resource Management will either investigate or assist those responsible for investigating complaints made by or against faculty members, students or House Staff Officers.

Actions taken to investigate and resolve sexual harassment complaints shall be conducted confidentially to the extent practicable and appropriate in order to protect the privacy of persons involved. An investigation may include interviews with the parties involved, and if necessary, with individuals who may have observed the incident or conduct or who have other relevant knowledge. The individuals involved in the complaint will be notified of the results of the investigation.

The Health Sciences Center will not tolerate discrimination or retaliation against any individual who makes a good-faith sexual harassment complaint, even if the investigation produces insufficient evidence to support the complaint, or any other individual who participates in the investigation of a
sexual harassment complaint. If the investigation substantiates the complaint, appropriate corrective measures and/or disciplinary action, up to and including termination, will be taken swiftly.

LSU Health Sciences Center Shreveport will make every reasonable effort to insure that all members of the Health Sciences Center Community are familiar with this policy. You are encouraged to address questions or concerns regarding this policy with the Assistant Director for Employee Relations, Human Resource Management.

**NOTIFICATION OF RIGHTS UNDER FERPA**

The Family Educational Rights and Privacy Act (FERPA) affords students certain rights with respect to their educational records. They are:

- The right to inspect and review the student's education records within 45 days of the day the LSUHSC receives a request for access. Students should submit to the registrar requests that identify the records they wish to inspect. The LSUHSC Office of the Registrar will notify the student of the time and place where the records may be inspected. If the records are not maintained in the Office of the Registrar, the student will be advised of the correct office to contact.

- The right to request the amendment of the student's educational record that the student believes are inaccurate or misleading.

Students may ask the LSUHSC to amend a record that they believe is inaccurate or misleading. They should write the LSUHSC official responsible for the record, clearly identify the part of the record they want changed, and specify why it is inaccurate or misleading.

If the LSUHSC decides not to amend a record as requested by the student, the LSUHSC will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing.

- The right to consent to disclosures of personally identifiable information contained in the student's educational records, except to the extent that FERPA authorizes disclosures without consent.

One exception which permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the LSUHSC in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the LSUHSC has contracted (such as an attorney, auditor, medical consultant, therapist, or collection agent); a person serving on the LSU Board of Supervisors; or a student serving on an official committee, such as for academic awards, disciplinary or grievance committees or assisting another school official in performing his or her tasks. A school official has legitimate educational interest if the official needs to review an educational record in order to fulfill his or her professional responsibility.
Upon request, the LSUHSC discloses education records without consent to officials of another school in which a student seeks or intends to enroll. (Attempts are made to advise the student of the disclosure before it is made.)

The right to file a complaint with the U.S. Department of Education concerning alleged failures by the LSUHSC to comply with the requirements of FERPA. The name and address of the office that administers FERPA is: Family Policy Compliance Office, U.S. Department of Education, 600 Independence Ave., SW, Washington, DC 20202-4605.

PUBLIC INFORMATION

In compliance with the Privacy Act, public information regarding students attending the LSUHSC includes the student's: name, current local address and phone number, date and place of birth, field of study, most recent previous school attended, dates of attendance, degrees and awards, photographs, e-mail address, class schedule and anticipated graduation date. Public information pertaining to any individual student will be released by the Office of the Registrar upon inquiry, unless the student has requested that specific items not be released. A student's request to have "public" information withheld must be filed at the Office of the Registrar no later than the third class day of classes following each registration. Partial or whole lists of students by name and address will not be released for commercial purposes other than by contractual agreement with the LSUHSC (currently there is no such agreement).

POLICIES AND PROCEDURES FOR DISMISSAL OF STUDENTS

Each student's academic performance, degree progression, and professional performance is reviewed at least annually by the student's Department. Reviews may occur more frequently, if judged appropriate or necessary by the Department. A student who does not meet the minimal grade point average requirements specified by the Graduate School and Department (a minimum grade point average of 3.0) may be academically dismissed from the program. Other reasons for dismissal (in addition to inadequate academic performance) include, but are not limited to, ethical and legal violations.

ETHICAL VIOLATIONS

Any student or faculty member has an obligation to report a perceived violation of ethical standards and of Departmental and institutional policies. The report should be made to the Department Head and to the Dean of the Graduate School. Certain ethical violations may be sufficiently serious to warrant immediate dismissal from the Program. They include, but are not limited to violation of the following
ethical principles: (1) unethical student-faculty relationships that are related to grades in a course or to student or faculty evaluation; (2) academic dishonesty, including, but not limited to, falsification and fabrication of research data and plagiarism; (3) violations of institutional policies.
ACADEMICS AND CURRICULUM

INTERDISCIPLINARY COURSES

IDSP 111  Basic Biochemistry, Molecular and Cellular Biology I (2 credits, letter grade)
Faculty Member in charge: Steven Witt, Ph.D.
(Department of Biochemistry and Molecular Biology)
When course is offered: Fall, Annually
Prerequisites for course: None
Description of course: This course provides an introduction to the basic biochemical properties of amino acids and proteins, a discussion of protein assembly and folding into the three dimensional structures required for function and an introduction to basic principles of enzyme kinetics, examples of enzyme active site structure and mechanism of action. Topics on membrane transport, carbohydrates and the important biochemical processes and enzymes that cells utilize to generate metabolic energy are also included in this section.

IDSP 112  Basic Biochemistry, Molecular and Cellular Biology II (2 credits, letter grade)
Faculty Member in charge: Brent Reed, Ph.D.
(Department of Biochemistry and Molecular Biology)
When course is offered: Fall, Annually
Prerequisites for course: IDSP 111
Description of course: Selected features of the metabolism of carbohydrates, lipids, amino acids and nucleotides are presented with discussions of the important mechanisms cells utilize to regulate these processes. The course concludes with a basic introduction to nucleic acids structure and function: replication, transcription, RNA processing and protein synthesis.

IDSP 113  Genetics (1 credit, letter grade)
Faculty Member in charge: Kenneth Peterson, Ph.D.
(Department of Microbiology and Immunology)
When course is offered: Spring, Annually
Prerequisites for course: IDSP 111,112
Description of course: This course will provide the student with an overview of classical genetics as well as an in-depth consideration of several fundamental processes involving DNA, including its recombination and repair. The course will also explore the emerging areas of genomics and proteomics. Lectures and discussions of the current literature will comprise the course.

IDSP 114  Cell Biology (2 credits, letter grade)
Faculty Member in charge: Kelly Tatchell, Ph.D.
(Department of Biochemistry and Molecular Biology)
When course is offered: Spring, Annually
Prerequisites for course: IDSP 111, 112, 113
Description of course: An introduction to cell structure and the mechanisms underlying cell division and protein trafficking. The course will focus on the cell biology of the nucleus, regulation
of the cytoskeleton, secretory pathways, endocytosis, protein targeting, ubiquitin-mediated proteolysis, apoptotic mechanisms, mechanisms of cell division and cell cycle control, the mechanisms involved in protein and membrane trafficking, and adhesion-mediated biology. Lectures and discussions of the current literature will comprise the course.

**IDSP 115 Molecular Signaling (1 credit, letter grade)**
Faculty Member in charge: Andrew Yurochko, Ph.D.
(Department of Microbiology and Immunology)
When course is offered: Spring, Annually
Prerequisites for course: IDSP 111, 112, 113, 114
Description of course: A modern comprehensive course concerning the regulation of cellular signaling processes in eukaryotic cells. Emphasis will be placed on the molecular mechanisms involved and approaches used to understand receptor-mediated signaling and signal transduction pathways. Attention is also focused on the current molecular and cellular biological techniques used today in the investigation of these important cellular processes.

**IDSP 116 Methods in Biomedical Sciences: Biochemical and Molecular Methods**
(1 credit, letter credit)
Faculty Member in charge: Donard Dwyer, Ph.D.
(Department of Pharmacology, Toxicology and Neuroscience)
When course is offered: Fall, Annually
Prerequisites for course: none
Description of course: Methods in Biomedical Sciences is a discussion of principles and application of common methods used for detection and analysis of macromolecules and their structure, function, and interaction. This course covers biochemical methods of separation and detection of macromolecules as well as structural analysis. There will be some form of out-of-class work for most lecture topics, including problems, literature reviews and visits to core facilities and major equipment. The goals of the course are: to develop an understanding of basic methods applied to the study of proteins and nucleic acids; to become familiar with the instrumentation used for these methods- (students should be aware of what instrumentation is required to use a particular method and have a basic idea how it is used), and to become aware of the ways that these methods and techniques are applied to biomedical study, i.e., understand what methods could/should be used to study a particular scientific problem. There will be one exam at the end of the course.

**IDSP 117 Methods in Biomedical Sciences: Recombinant DNA and Cell Biology**
(1 credit, letter grade)
Faculty member in charge: Rona Scott, Ph.D.
(Department of Microbiology and Immunology)
When course is offered: Fall, Annually
Prerequisites for course: none
Description of course: Goals are the same as for IDSP 116. This course covers recombinant DNA methods including cloning and gene expression, DNA sequencing, PCR, and mutagenesis. The course also covers analysis of nucleic acids and proteins, including interaction detection methods, genomics and proteomics and also covers direct observation methods of analysis and immunological methods. There will be one exam at the end of the course.

**IDSP 119 Gene Expression (1 credit, letter grade)**
Faculty Member in charge:  David Gross, Ph.D.
   (Department of Biochemistry and Molecular Biology)
When course is offered:  Spring, Annually
Prerequisites for course:  IDSP 111, 112, 113, 114, 115

Description of course:  This course will provide the student with an overview of fundamental processes of transposition and transcription in procaryotes and eukaryotes. The course will also explore the emerging areas of gene transfer, siRNA and model systems of eukaryotic gene expression. Lectures and discussions of the current literature will comprise the course.

**IDSP 201**  Introduction to Human Cancer-Research, Treatment and Prevention (2 credits, letter grade)
   Faculty member in charge:  James Cardelli, Ph.D.
   (Department of Microbiology and Immunology)
   When course is offered:  As needed
   Prerequisites for course:  Permission of course director.
   Description of course:  This will be a three credit introductory course taught by basic scientists and clinical scientists. Four topics will be covered including:  1) An introduction and overview of cancer; 2) cancer cell biology; 3) the diagnosis, treatment and prevention of cancer and 4) the molecular pathogenesis and treatment of specific cancers. The focus of this course will be to provide information concerning what is currently understood about the biochemical mechanisms operating during neoplasia and will include up-to-date information about oncogenes, tumor suppresser genes, metastasis, angiogenesis, tumor immunology, diagnostic approaches (conventional and molecular) and treatment modalities. The course will consist of lectures that stress the research approaches and finding that currently form the basis for our understanding of how neoplastic cells arise and form cancers. This course will form the basis for more advanced courses in the cell and molecular biology of cancer.

**IDSP 202**  Mechanisms of Cancer Invasion and Metastasis (1 credit, letter grade)
   Faculty Member in charge:  James Cardelli, Ph.D.
   (Department of Microbiology and Immunology)
   When course is offered:  As needed
   Prerequisites for course:  IDSP 201, Approval by Course Director
   Description of course:  An advanced course, involving lecture and discussion, to study the processes involved in the development of metastatic disease. Students will learn the fundamentals, including the key molecules, events and signaling pathways that are directly involved in the invasive/metastatic processes. Important seminal papers as well a current literature will be used in student discussion.

**IDSP 203**  Discussions in Cancer Biology (1 credit, S/U)
   Faculty member in charge:  James Cardelli, Ph.D.
   (Department of Microbiology and Immunology)
   When course is offered:  Fall and Spring semesters
   Prerequisites for course:  none
   Description of course:  A journal club/research in progress format is used for the discussion of published and unpublished findings in cancer biology. Emphasis is on critical evaluation of experimental design and interpretation. Students will present and also participate in overall discussions. Grading will be based on participation and attendance. The class will meet once a week for 1 hr.
IDSP 211  Foundations of Biomedical Sciences I - General Principles (1 credit, letter grade)
  Faculty member in charge: Norman Harris, Ph.D.
  (Department of Molecular and Cellular Physiology)
  When course is offered: Fall, Annually
  Prerequisites for course: None
  Description of course: An integrative introduction to cell physiology/anatomy and to the
general principles of pharmacology.

IDSP 212  Foundations of Biomedical Sciences I - Cardiovascular System (2 credits, letter grade)
  Faculty member in charge: Steven Alexander, Ph.D.
  (Department of Molecular and Cellular Physiology)
  When course is offered: Fall, Annually
  Prerequisites for course: None
  Description of course: An integrative approach to the physiology, anatomy, histology and
  pharmacology of the cardiovascular system.

IDSP 213  Foundations of Biomedical Sciences I - Renal System (1 credit, letter grade)
  Faculty member in charge: Karen Stokes, Ph.D.
  (Department of Molecular and Cellular Physiology)
  When course is offered: Spring, Annually
  Prerequisites for course: None
  Description of course: An integrative approach to understanding the kidney's role in
  maintaining homeostasis. Emphasis will be on global regulation of salt, water and acid/base balance
  seen from a traditional as well as molecular perspective. Where available "knockout" animals and
  functional expression analyses are incorporated.

IDSP 214  Foundations of Biomedical Sciences I - Respiratory System (1 credit, letter grade)
  Faculty member in charge: Christopher Pattillo, Ph.D.
  (Department of Molecular and Cellular Physiology)
  When course is offered: Spring, Annually
  Prerequisites for course: None
  Description of course: An integrative course covering the physiology, anatomy/histology and
  pharmacology of the respiratory system.

IDSP 216  Foundations of Biomedical Sciences II - Gastrointestinal System (1 credit, letter grade)
  Faculty member in charge: Neil Granger, Ph.D.
  (Department of Molecular and Cellular Physiology)
  When course is offered: Fall, Annually
  Prerequisites for course: None
  Description of course: Integrative course in the anatomy, physiology and pharmacology of the
  gastrointestinal tract.

IDSP 217  Foundations of Biomedical Sciences II - Endocrine System (1 credit, letter grade)
  Faculty member in charge: Nancy J. Leidenheimer, Ph.D.
  (Department of Biochemistry and Molecular Biology)
When course is offered: Spring, Annually
Prerequisites for course: None
Description of course: An integrative course covering the physiology, anatomy, histology and pharmacology of the endocrine system.

**IDSP 218**  
Foundations of Biomedical Sciences II - Nervous System (2 credits, letter grade)  
Faculty member in charge: Sandra C. Roerig, Ph.D.  
(Department of Pharmacology, Toxicology and Neuroscience)  
When course is offered: Summer, Annually  
Prerequisites for course: None  
Description of course: Integrative anatomical, physiological and pharmacological examination of the nervous system.

**IDSP 219**  
Foundations of Biomedical Sciences II - Inflammation, Immunity and Infection  
(1 credit, letter grade)  
Faculty member in charge: Martin Muggeridge, Ph.D.  
(Department of Microbiology and Immunology)  
When course is offered: Spring, Annually  
Prerequisites for course: None  
Description of course: An integrative approach to the anatomy, histology, physiology and pharmacology of inflammation and immunity to include discussion of antimicrobial and anti-cancer therapy.

**IDSP 226**  
Basic Biostatistics (1 credit, letter grade)  
Faculty member in charge: Sandra C. Roerig, Ph.D.  
(Department of Pharmacology, Toxicology and Neuroscience)  
When course is offered: annually, spring semester  
Prerequisites for course: none  
Description of course: This course is designed for graduate students who have little background in statistics. The lectures and associated homework assignments will provide working knowledge of basic statistical methods and their applications. Lectures will be based on chapters from the textbook. Topics will include frequency distribution, correlations, regression analysis, probability, distributions and hypothesis testing. Examples of use of these methods, descriptions of experimental design incorporating these methods and ethical treatment of data will be considered in all aspects of the course.

**IDSP 227**  
Advanced Biostatistics (1 credit, letter grade)  
Faculty member in charge: Clif Frilot, Ph.D.  
(School of Allied Health Professions)  
When course is offered: annually, spring semester, after IDSP 226  
Prerequisites for course: none  
Description of course: This course is designed for a graduate student who has knowledge of basic statistics. The lectures and homework assignments will provide working knowledge of more advanced statistical methods/concepts and their applications. Lectures will be based on chapters from the textbook. Additional material will supplement this text. Topics will include power analysis, parametric and non-parametric analysis, analysis of variance and components and factor analyses.
Examples of use of these methods, descriptions of experimental design incorporating these methods and ethical treatment of data will be considered in all aspects of the course.

**IDSP 230**  
Advances in Gene Therapy (1 credit, letter grade)  
Faculty member in charge: Ronald Klein, Ph.D.  
(Department of Pharmacology, Toxicology & Neuroscience)  
When course is offered: As needed  
Prerequisites for course: IDSP 211-214, 216-219  
Description of course: An overview of gene therapy emphasizing the clinical history, the types of diseases that could benefit the most and ethical issues. Some of the major gene transfer vector systems will be covered in detail, highlighting advances in this rapidly developing field. Student's grades will be based on participation in discussion of current research and review articles, as well as exams.

**IDSP 235 A and B**  
Grant Writing (A offered for 1 letter grade credit, B offered for S/U)  
Faculty members in charge: Andrew Yurochko, Ph.D.  
(Department of Microbiology and Immunology)  
When course is offered: Annually, fall semester  
Prerequisites for course: None  
Description of Course: The fundamental principles of grant writing and review will be covered, with an emphasis on NIH-type research grants. For letter credit, the students are expected to write a grant proposal and to present a grant review at a mock study section. For S/U credit, neither a written proposal nor a review is required. Attendance and class participation are required for all students.

**IDSP 240**  
Philosophical and Ethical Issues in Science (1 credit, S/U)  
Faculty member in charge: Sandra C. Roerig, Ph.D.  
(Department of Pharmacology, Toxicology and Neuroscience)  
When course is offered: Summer, annually  
Prerequisites for course: None  
Textbook: *Scientific Integrity*, Francis L. Macrina, 3rd edition  
Description of course: The objective of this course is to provide an understanding of the underlying philosophy in scientific endeavors and the ethical issues that face scientists. The course will involve detailed discussions about the history of scientific thought, the scientific method, experimentation and data collection, mentoring and current ethical issues. Sessions will include lectures and discussions by faculty, students and postdoctoral fellows.

**IDSP 250 A & B**  
Current Trends in Toxicology (1 credit, S/U)  
Faculty member in charge: Kenneth McMartin, Ph.D.  
(Department of Pharmacology, Toxicology & Neuroscience)  
When course is offered: Every semester  
Prerequisites for course: None  
Description of course: A discussion format in which students, postdoctoral fellows, research personnel and faculty from the Health Sciences Center with a common interest in Toxicology and Environmental Health meet to present emerging concepts, research data and hypothesis-driven research proposals in all toxicological sub-specialties. Topics will be selected from peer-reviewed Toxicology-based literature, from research findings from the participant's own laboratories, or from proposals in preparation for external funding. Class sessions will include occasional, scheduled meetings with Toxicologists from nearby institutions in the tri-state area. Students will be taught oral
presentation skills, methods of evaluating current trends in Toxicology literature and research, and fundamentals of the grant-writing and review process. Grading will be based on student presentations and participation in class discussion. Section A is offered in the fall semester for 0.5 credit and Section B is offered in the spring semester for 0.5 credit.
The doctor of philosophy degree is conferred only for work of distinction in which the student displays original scholarship. The Graduate School of LSUHSC-S and the faculty of the Department of Biochemistry and Molecular Biology maintain a program that provides students the opportunity to distinguish themselves within a chosen field of study. Students are trained to recognize significant biomedical problems, to design experimental approaches to solving these problems, and to communicate their results to the scientific community.

I. Course Requirements

All students are required to complete 24 credit hours in courses for which a letter grade is assigned. These 24 credit hours will consist of 14 hours derived from the core curriculum and 10 or more elective credits chosen from other letter-graded graduate courses. In addition to the elective courses offered by the Department of Biochemistry and Molecular Biology, students may choose as electives any of the interdisciplinary (IDSP) courses, or those offered by other basic science departments of the School of Graduate Studies that assign a letter grade upon completion of the course. Taking courses outside of the Department of Biochemistry and Molecular Biology is optional unless mandated by a student’s advisory committee. However, decisions regarding electives must be made in conjunction with the advisory committee.

Descriptions of interdisciplinary (IDSP) courses are found on previous pages of this handbook. Courses offered by other departments are described within the specific section for those departments in the handbook.

A. Core Courses (Required)

IDSP 111 and 112. Basic Biochemistry and Molecular Biology I and II, 2 x 2 credits, letter grade
IDSP 113. Genetics, 1 credit, letter grade
IDSP 114. Cell Biology, 2 credits, letter grade
IDSP 115. Molecular Signaling 1 credit, letter grade
IDSP 119. Gene Expression, 1 credit, letter grade

IDSP 116 and 117. Methods in Biomedical Sciences; Biochemical and Molecular Methods, Recombinant DNA and Cell Biology, 2 x 1 credits, letter grade

IDSP 226. Introductory Biostatistics, 1 credit, letter grade

BIOCH 282. Topics in Biochemistry and Molecular Biology: Protein Structure/Function. (1 credit, letter grade) A series of lectures focused on the use of state-of-the-art approaches to study protein structure, protein folding and protein-ligand interactions. Taught in the fall semester of even-numbered years. Course Director: Dr. Eric First
BIOCH 288. Scientific Writing. (1 credit, letter grade) A course designed to teach fundamentals of writing a scientific paper, writing a grant proposal, and identifying topics and approaches suitable for grant proposals. Course offered spring semester of every year. Course Director: Dr. Hari Koul

B. Departmental Elective Courses

BIOCH 223. Physical Biochemistry. (2 credits, letter grade) A lecture course taught in the spring semester of odd numbered years. Discussions of physical and chemical techniques used in biochemistry to study macromolecular architecture and interactions. Course Director: Dr. Eric First.

BIOCH 271. Topics in Biochemistry and Molecular Biology: Cell Signaling. (1 credit, letter grade) A seminar/discussion course based on current literature that is offered in the spring semester. The theme (signaling pathway) covered by the course changes for each offering. The introduction of a topic by the instructor is followed by literature discussions led by students. Past examples of course themes include MAPK signaling in yeast, Drosophila and vertebrates, and two-component regulatory systems in prokaryotes and eukaryotes. Course Director: Dr. Lucy Robinson.

BIOCH 281. Topics in Biochemistry and Molecular Biology: Molecular Mechanisms of Post-transcriptional Control. (1 credit, letter grade) A literature-based course dealing with post-transcriptional control of gene expression in eukaryotic cells and their viruses. Topics will include mRNA splicing, mRNA stability, translational control, and protein targeting. Offered in the fall semester of even-numbered years. Course Director: Dr. Ricky De Benedetti.

BIOCH 283. Topics in Biochemistry and Molecular Biology: Molecular Mechanisms of Transcriptional Control. (1 credit, letter grade) A literature-based course covering the role of promoter-specific activators and repressors, the nature and role of the general transcriptional machinery, and the role of nucleosomes and higher-order chromatin structures in regulating transcription. Offered in the fall semester of even-numbered years. Course Director: Dr. David S. Gross.

BIOCH 286. Topics in Biochemistry and Molecular Biology: Classical and Molecular Genetics. (1 credit, letter grade) This course will emphasize classical genetic methods as they apply to modern molecular biology. The course content will rely on yeast as an experimental organism, although the intent is to teach genetic principles as they apply to eukaryotic organisms in general. Offered in the fall semester of odd-numbered years. Course Director: Dr. Kelly Tatchell.

BIOCH 287. Topics in Biochemistry and Molecular Biology: Applications of Spectroscopic Techniques to Biochemical Problems. (1 credit, letter grade) This course emphasizes the principles of well-established methods, such as fluorescence spectroscopy, and new methods, such as surface plasmon resonance spectroscopy, and their applications to biochemical problems. Offered in the spring semester of odd-numbered years. Course Director: Dr. Stephan Witt.

BIOCH 290. Introduction to Bioinformatics. (3 credits, letter grade) This course introduces the computational and biological concepts and skills required for the field of bioinformatics. It is intended to provide an overview of the field of bioinformatics and train both life and computer science students to use commonly used bioinformatics programs. Offered in the spring semester of even-numbered years. Course Directors: Drs. Eric First and Marjan Trutschl.

C. Non-Departmental Electives
Interdepartmental

IDSP 201. Introduction to the Cell Biology of Cancer. 2 credits, letter grade

Selected courses from Foundations of Biomedical Sciences I and II

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
<th>Grade Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDSP 211</td>
<td>General Principles</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 212</td>
<td>Cardiovascular System</td>
<td>2</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 213</td>
<td>Renal System</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 214</td>
<td>Respiratory System</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 216</td>
<td>Gastrointestinal System</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 217</td>
<td>Endocrine Systems</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 218</td>
<td>Nervous System</td>
<td>2</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 219</td>
<td>Immunology/Inflammation</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 227</td>
<td>Advanced Statistics</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 235A</td>
<td>Grant Writing</td>
<td>1</td>
<td>letter grade</td>
</tr>
</tbody>
</table>

D. Additional Course Requirements

In addition to the formal courses described above, students are required to register for several courses for which a satisfactory/unsatisfactory decision, rather than letter grade, is assigned upon completion of the course. These courses include the following:

IDSP 240. Philosophical and Ethical Issues in Science (1 credit, S/U). Course offered summer semester of each year. Course Director: Dr. Sandra Roerig.

BIOCH 207. Introduction to Special Methods of Research (1-6 credits, S/U). This course provides first-year students credit for their efforts in laboratory rotation. Each new student is expected to participate in three separate rotations, each of two to three months duration.

BIOCH 298. Journal Club (1 credit, S/U). Each student is expected to make a one-hour presentation of a research article taken from the current literature and to participate in all journal club meetings scheduled in the fall and spring semesters. First and second year students should choose a faculty advisor who is not their dissertation or rotation director to advise in choice of topic and to critique the journal club both prior to and after the presentation.

BIOCH 299. Research Seminar (1 credit, S/U). This course offers credit for participation in the departmental seminar program and student seminar program. Each student is expected to present a
formal research seminar on their research project at least once during his/her degree candidacy and to participate in all departmental seminars scheduled in the fall and spring semesters.

**BIOCH 300.** Thesis Research. (1-6 credits, S/U) This course offers credit for research work applied to the Masters thesis.

**BIOCH 400.** Dissertation Research. (1-9 credits S/U) This course provides students credit for their research work applied to their Ph.D. dissertation.

Full-time students who have not yet completed the coursework requirement must register for a minimum of 9 credit hours (letter grade or S/U) in both fall and spring semesters, and 6 credit hours in summer semester. Students who have completed all coursework should register for dissertation research credit hours until completing all degree requirements.

### E. Course Requirement Summary

<table>
<thead>
<tr>
<th>COURSE</th>
<th>CREDITS</th>
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<tr>
<td><strong>Core Courses</strong></td>
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<td>IDSP 111</td>
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<td>IDSP 112</td>
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<td><strong>Departmental Elective Courses</strong></td>
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<tr>
<td>BIOCH 223</td>
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<td>BIOCH 271</td>
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<td>BIOCH 281</td>
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<td>BIOCH 283</td>
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<td>BIOCH 287</td>
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<tr>
<td>BIOCH 290</td>
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<tr>
<td><strong>Non-Departmental Elective Courses</strong></td>
<td></td>
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<tr>
<td>IDSP 201</td>
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<td>IDSP 211</td>
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<td>IDSP 212</td>
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<td><strong>Non-Departmental Elective Courses</strong></td>
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<tr>
<td>IDSP 219</td>
<td>1</td>
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<tr>
<td>IDSP 227</td>
<td>1</td>
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</tbody>
</table>
II. Laboratory Rotations

During the first year of study, all students are required to rotate through a minimum of three laboratories. Rotation periods for the 2015-2016 academic year will begin the week of 3 August. The student is expected to choose a permanent laboratory following the third rotation. Students will receive, in addition to a S/U grade, a narrative evaluation of each of their rotations. These evaluations, along with a student’s performance in courses and on the Qualifying Examination will be used in a year-end evaluation of his or her status in the Ph.D. program.

III. Advisory Committees

Each student is required to select a graduate advisory committee that will meet approximately every 6 months. This committee will consist of the student’s dissertation advisor (major professor), three additional members of the Department of Biochemistry and Molecular Biology, and one faculty member whose primary appointment is outside of Biochemistry and Molecular Biology (adjunct Biochemistry faculty are considered to be within the department). All committee members must hold appointments within the LSUHSC-S Graduate School, i.e., faculty from clinical departments may serve on graduate advisory committees if they hold appointments in the Graduate School. Faculty who have joint appointments in the Department of Biochemistry and Molecular Biology and another department may serve on advisory committees as an inside members.

The advisory committee should be chosen by the student and the dissertation advisor as soon as possible after the student has been matched with a dissertation advisor after successful completion of the Qualifying Examination.

In addition to the permanent advisory committee, the student must select an ad hoc committee member (outside of this institution) who will serve during the evaluation of the Preliminary Examination. This member is to be chosen by the student, with the advice and consent of the dissertation advisor. The outside member will read the Preliminary Examination proposal, attend the Preliminary Examination and contribute to the discussion and decision regarding the outcome of the examination.

IV. Qualifying Examination

All Ph.D. students are required to pass the Qualifying Examination administered in June at the end of the first year, about two weeks after completion of the spring semester. The Qualifying Examination is a two-day written examination designed to test basic knowledge as well as analytical skills in biochemistry and molecular biology. Students will be informed in writing whether they passed or failed the examination. A student who fails the exam on the first try may take it again in January of year two if given permission by the faculty. Students who are not given permission will be dismissed. Students who enter graduate school in mid-year will be required to take the Qualifying Examination in January of year two, if it is offered, or in June of the second year. A student who fails the Qualifying Examination twice will be dismissed from the Ph.D. program. The student may seek a Master’s degree in Biomedical Science, at the discretion of a majority of the Departmental faculty. All students must pass the Qualifying Examination before attempting the Preliminary Examination.
V. Preliminary Examination

As a condition for admission to candidacy for the Ph.D. degree, all students must pass a Preliminary Examination (Prelim). The Prelim consists of a written research proposal on the student’s Ph.D. thesis work in the format of an NIH RO1 grant application and a public presentation of a seminar describing the proposal. At the discretion of the student’s advisory committee, a comprehensive review of the pertinent scientific literature may also be required as an addendum to the research proposal.

The rationale and major objectives to be accomplished in writing the grant proposal include the following: (1) The student gains the experience of writing a complete research proposal within their research area. (2) The proposal serves as a “working document” for the student and mentor in the final stages of the student’s research program. Much of the proposal may be used in the student’s final dissertation. (3) The proposal requires that the student focus on current accomplishments and the work that remains to be accomplished for the research project. (4) It demonstrates understanding of the concepts inherent in the research problem, of the methods employed in the research, and of the basic concepts of biochemistry and molecular biology.

One of the unique aspects of the Preliminary Examination format is that each Ph.D. student is required to choose a visiting scientist (ad hoc committee member) to participate in the evaluation of the research proposal. The visiting scientist is chosen by the student in consultation with his/her dissertation director and with the approval of the dissertation committee. The visiting scientist should be a nationally recognized authority within the student’s research area. The visiting scientist receives a copy of the research proposal and participates as a voting member of the committee in the examination. The visiting scientist is also expected to present a departmental seminar during his/her visit.

The proposal must be typed on a current NIH grant application forms and conform to all page limitations. The student should have approximately 25% of the dissertation research completed before attempting the Preliminary Examination. This provides an opportunity for the visiting scientist to have substantial input into the development of the student's project. The Advisory Committee, including the visiting scientist, will make a judgment of pass, fail, or conditional pass. In the latter case, some revision of the research proposal is required.

Students are required to take the Preliminary Examination prior to September 1 at the beginning of the third year. Any decision to take the Preliminary Examination later than September 1 must be approved by the Advisory Committee with the consent of the departmental Director of Graduate Studies.

A student who fails the Preliminary Examination may retake it, at the discretion of a majority of the Departmental faculty, up to 12 months after the original exam. A student who fails the Preliminary Examination twice will be dismissed from the Ph.D. program. The student may remain in the graduate program, seeking a Master’s Degree in Biomedical Science, at the discretion of the student’s committee.

VI. Dissertation

A written Ph.D. dissertation must be submitted to the advisory committee and defended according to the guidelines established by the LSUHSC Graduate School.
VII. Expectations of students awarded the Ph.D. degree

Due to the nature of scientific research, there is a wide range of variation among dissertation projects. As a result, it is impossible to set precise time or productivity standards for obtaining a Ph.D. The final decision as to whether a student has satisfied the requirements for a Ph.D. rests with the advisory committee. Nonetheless, the following achievements and skills are expected to be attained by every student who receives the Ph.D. degree from this department.

A. The student should have a good basic knowledge of biochemistry and molecular biology, as evidenced by maintaining a GPA of at least 3.0 in the curriculum.

B. The student should be able to critically read and understand the scientific literature.

C. The student should know the scientific literature in her or his field, and know it well.

D. The student should understand how her or his research fits into the context of other research in the field.

E. The student should be able to conduct independent scientific research that makes an original and significant contribution to her or his field. This includes proposing testable hypotheses, designing experiments and controls for testing these hypotheses, performing experiments, interpreting the results of these experiments, and publishing the results in peer-reviewed scientific journals.

F. When an experiment does not work, or gives ambiguous results, the student should be able to devise and execute an experimental plan to determine why the experiment did not work, or to clarify the ambiguous results.

VIII. Academic Probation

Students must maintain a minimum grade point average (GPA) of 3.0. A student with a GPA of below 3.0 is immediately placed on probation, and continuation of the student in the program is at the discretion of the Departmental faculty. The faculty may choose one of the following options: 1) dismiss the student from the graduate program, 2) allow the student to enter the M.S. program (see below), or 3) extend the period of probation to allow the student to attain a GPA of 3.0. The probationary period may not extend beyond one year for either Ph.D. or M.S. students unless an extension is granted by the department, conditional on approval by the Dean of the School of Graduate Studies.

VIII. The Master of Biomedical Science (M.S.) Program.

The Master of Biomedical Science (M.S.) degree may be awarded to students that enrolled in the Ph.D. program after the successful completion of a minimum of 24 hours of the graduate curriculum (described above) plus at least 6 hours of research credit with a cumulative GPA above 3.0.
The student must receive permission from the Office of Graduate Studies to enter the M.S. program. A new thesis committee is formulated using three of the original five advisory committee members, one of whom is not a member of the Department of Biochemistry and Molecular Biology. A written M.S. thesis must be submitted to the advisory committee and defended according to the guidelines established by the LSUHSC-S Graduate School.

A. Other Stipulations

1. Tuition waivers are provided if funds are available.

2. Compensation may be provided at the discretion of the thesis advisor. In no instance will compensation be paid from departmental sources.

3. Holding a job outside the Department is permitted only in cases where other compensation is not provided.

B. Re-admission to the Ph.D. Program

A student may be re-admitted to the Ph.D. program if the following conditions have been met:

1. The successful completion of the M.S. degree in Biomedical Science and with the recommendation of the student’s Advisory Committee.

2. The student has successfully passed the written Qualifying Examination within two attempts.

3. The student has achieved a 3.0 GPA, as described for the requirements of the Ph.D. degree.

4. The departmental Graduate Admissions Committee reviews, and the student’s application meets, the requirements of the LSUHSC-S Graduate School and the admissions committee.
The Department of Cellular Biology & Anatomy offers training programs for both doctoral and master’s degrees. These programs provide students with the knowledge and skills necessary to pursue independent careers in biomedical research and to teach human anatomy, as described below.

DOCTOR OF PHILOSOPHY DEGREE

The Ph.D. degree is the highest academic degree offered by the university. The major emphasis of the Ph.D. program in the Department of Cellular Biology & Anatomy is to provide an environment in which students learn to pursue original scholarship in the laboratory and to communicate scientifically in order to become a competent biomedical scientist. The program emphasizes mentor-guided training in molecular, cellular, physiological and neural mechanisms of normal functioning and disease processes. We focus on diseases that are widespread and greatly impact modern society, such as cancer, cardiovascular disease, diabetes mellitus, epilepsy and stroke. Doctoral training includes preparation of a grant proposal for pursuing dissertation research, seminars describing research progress, participation in journal clubs, presentations at scientific conferences, and a final defense of the dissertation, which should describe original research of distinction. Training also includes core courses in embryology, histology and anatomy of the human musculoskeletal system, body cavities and nervous system. Students subsequently assist with one of these courses, providing them with valuable teaching experience for pursuing an academic career. Other core courses and elective courses include interdisciplinary basic science courses in the molecular and cellular biology and physiology of organ systems.

MASTER OF BIOMEDICAL SCIENCE DEGREE

The Department offers a Clinical Anatomy track in the School of Graduate Studies’ M.S. Degree in Biomedical Sciences. The Anatomy track is a two-year program designed to fill the critical need for anatomy instructors at medical schools, other professional schools and undergraduate institutions. During the first year of the Program, M.S. students complete courses in embryology, histology and anatomy of the human musculoskeletal system, body cavities and nervous system, including labs and clinical correlations. During the second year, the students assist with these courses and complete a mentor-guided research project on a cellular, molecular and/or anatomical topic, culminating in a thesis.

I. REQUIREMENTS FOR ADMISSION TO THE PH.D. AND M.S. PROGRAMS

A. Baccalaureate degree from an accredited college or university.

B. Undergraduate grade point average of 3.0 on a 4.0 point scale, and a 3.0 grade point average for all graduate coursework. Probationary or provisional admission is sometimes granted if the G.P.A. is near but below these standards or the 2.5 GPA required by the School of Graduate Studies for unconditional admission.

C. Most successful applicants should have completed courses in inorganic chemistry, organic chemistry, biochemistry, physics and biological sciences. For exceptional applicants, one or more course requirements can be waived. Advanced courses in mathematics (e.g., calculus) are also strongly recommended.

D. The minimum verbal plus quantitative score on the Graduate Record Examination required for unconditional admission is 300. Applicants admitted to the Ph.D. program typically have higher scores.

E. International students should have scores of at least 550 on the Test of English as a Foreign Language (TOEFL; 90/120 or better on the computerized TOEFL) for unconditional admission.

F. Letters of recommendation from three former professors or other professional academicians
familiar with the student’s coursework or scientific employment, initiative and character.

G. Positive interviews with departmental faculty and the departmental Head. Interviews with well-qualified students living far from Louisiana will be conducted by teleconference.

II. PROCEDURE FOR ADMISSION TO THE PROGRAMS

Students can obtain an application form from the School of Graduate Studies website: http://www.lsuhscshreveport.edu/Research/schoolofgradstudies/index

They can also obtain a printed application form by emailing the Graduate Recruiter or Graduate Program Director listed on the departmental website, by writing to the Graduate Recruiter, Department of Cellular Biology & Anatomy, LSU Health Sciences Center, P.O. Box 33932, Shreveport, Louisiana 71130-3932, or by calling the Departmental office at 318-675-5313. Students should submit the completed application, copies of transcripts from all undergraduate and graduate institutions attended, GRE scores and, for international students, TOEFL score, to the Graduate Recruiter. After the application, transcripts and scores have been reviewed by the Graduate Advisory Committee of the Department, the most promising applicants will be contacted to arrange on-campus interviews with the Faculty and Head of the Department.

After the interviews, the Graduate Recruiter will notify applicants of their acceptance into the Program, pending completion of the formal application process. This includes submitting a copy of the application to the Office of Graduate Studies, LSU Health Sciences Center, P.O. Box 33932, Shreveport, Louisiana 71130-3932. Students must also arrange for the registrar of each graduate and undergraduate school attended to submit two official transcripts directly to the Office of Graduate Studies. Similarly, they must arrange for the Educational Testing Service to submit results of the Graduate Record Examination and the TOEFL directly to the School of Graduate Studies. Copies are not acceptable.

III. RESIDENCY REQUIREMENTS FOR PH.D. PROGRAM

Students are expected to devote full-time to the Ph.D. program. Completion of the degree typically requires at least four years of enrollment. In general, stipend support (described below) is only available for four years; students should strive to complete the degree during this time period.

Students who enter the doctoral program with an M.S. or other graduate degree in science might be able to complete the Ph.D. degree in less time, but they must still meet all requirements for the Ph.D. degree. Students with relatively weak scientific backgrounds and little prior research experience sometimes require five years to complete the program. Under exceptional circumstances, and with permission from the Graduate Advisory Committee, Department Head and Dean of the School of Graduate Studies, students can be granted a leave of absence from the program; leave time is not considered part of the residency requirement.

IV. FINANCIAL SUPPORT FOR PH.D. AND M.S. STUDENTS

Every effort will be made to provide a stipend to Ph.D. students who remain in good academic standing (Sec V) and continue to make progress toward the degree. Funding can come from any of four sources, and typically increases by $1,000/yr after the student successfully passes the Preliminary Exam (Sec V-B). Depending on availability of funding, M.S. students might also be eligible for a stipend from the Department in their second year, but they do not typically receive funding from a research grant. However, depending on availability, an M.S. student can receive a tuition waiver (Sec VI).

A. Stipend from the Department and School of Graduate Studies. These stipends are awarded to many full-time Ph.D. students in good academic standing (Sec V).

B. Research Grant Awarded to the Graduate Advisor. Students who conduct research related
to the aims of a research grant awarded to their Research Advisor are eligible to receive a Graduate Research Assistantship paid by the grant. Departmental policy is that these students cannot receive a net (after tax) salary exceeding departmental stipends awarded to other students. Students supported on research grants are still considered full-time students.

C. Individual Research Fellowship. Ph.D. students with outstanding academic records are encouraged to apply for a pre-doctoral fellowship from the National Institutes of Health, National Science Foundation or other foundation recommended by the Graduate Research Advisor. Students with a M.D., D.D.S., or D.V.M. degree are encouraged to apply for an individual National Research Service Award (NRSA). Students with other advanced degrees who obtain an NRSA are still subject to all Ph.D. degree requirements.

D. Individual Pre-doctoral Fellowship. Ph.D. students who have successfully completed their Qualifying and Preliminary Exams and defended their dissertation proposal (described below) are eligible for a $28,000 (per year) in-house pre-doctoral fellowship that could offered: the Malcolm Feist Fellowship supports students conducting cardiovascular research; the Carroll Feist Fellowship supports students conducting cancer research; the Ike Muslow fellowship supports students whose research focuses on other scientific areas. Deadlines for submission of applications are in October and April. Fellowship sponsors determine which applicants to fund, typically beginning July 1. Fellowships can be renewed twice, for a total of 3 years of support. Additional information can be obtained from the Office of Research website:

http://www.lsuhschscreveport.edu/Research/officeofresearch/index

Income from fellowships (Sec IV-C and -D) can exceed the approved Departmental level (Part IV-A and -B). The Department endeavors to administer stipends and research assistantships fairly and equitably. Regardless of the amount of financial assistance that is provided, Ph.D. students cannot receive additional funds from the university or from other employment. Ph.D. students receive stipends, research assistantships and fellowships so they can devote 100% time and effort to doctoral training and research. Students in financial difficulty should discuss the matter with their Graduate Research Advisor, the Department Head or the Dean of the School of Graduate Studies, who might be able to provide some assistance.

V. ACADEMIC STANDING

In June of each year, the Graduate Advisory Committee evaluates Ph.D. and M.S. student progress reports (with input from Research Advisors) and mentoring plan for the upcoming year. Students are expected to maintain an overall grade point average of 3.0 on a 4.0 point scale, to make steady progress toward completing the degree and to follow the recommendations of the Research Advisor and Committee. Failure to meet these requirements can result in loss of academic standing and in academic probation. Students on academic probation are not eligible for a stipend and could lose their tuition waiver and fellowship. They might still be able to receive a Research Assistantship, but this cannot be guaranteed. Research and other S/U-graded courses are not included in computing the GPA. Standards for letter grades are set by the Department, Graduate School and directors of individual courses.

Students on academic probation will be given up to three subsequent consecutive semesters to raise their overall average to 3.0 on a 4.0 scale. The probation length will be determined by the Graduate Advisory Committee and Department Head, who can impose additional requirements, such as an ‘A’ or ‘B’ final grade in a specific course or courses. At the discretion of the Graduate Advisory Committee, Department Head and Faculty Advisor, students who fail to return to good academic standing in the time required will be dismissed from the Ph.D. or M.S. program. A grade lower that “C” can also result in immediate termination from the Ph.D. or M.S. program.

VI. TUITION WAIVERS
The School of Graduate Studies policy on tuition waivers for graduate students was stated in a memorandum from the Dean on August 7, 1984. The policy is as follows:

A. Tuition will be waived for full-time Ph.D. students who hold Graduate Assistant appointments.

B. Tuition will be waived for full-time Ph.D. students who are paid a stipend/wage from a grant, regardless of the source of the grant.

C. Tuition will not be waived for Ph.D. students who are paid from grants that expressly indicate that the grants will pay tuition costs. This primarily pertains to training grants.

D. If funds are available, tuition waivers will also be provided for M.S. students.

E. Students who are not full-time are not eligible for tuition waivers.

All Ph.D. and M.S. students are responsible for paying the University Activity Fee and must purchase Health Insurance or provide evidence of other health-care coverage. Students are also responsible for costs of binding the thesis and dissertation, microfilming and diploma, as well as for other incidental expenses not covered by tuition waiver.

VII. RESEARCH FOR THE DOCTORAL DISSERTATION AND M.S. THESIS

A. Research Components

The Ph.D. program emphasizes laboratory research, presentation of departmental seminars (see below), poster and oral presentations at scientific meetings, publication of papers, and preparation and defense of the dissertation. Students are expected to conduct laboratory and library research even when courses are in progress, because learning how to allocate effort is important to the training. The M.S. Program has less-stringent research requirements and emphasizes in-depth training in human anatomy with clinical correlations.

During first several semesters, students take a laboratory research rotation course, Research Methods (CEBIO 250). The Graduate Program Director supervises the first rotation, which consists of interviews with graduate faculty members of the Department. Each student must then provide the Graduate Program Director with a written list of faculty members with whom he or she would like to conduct lab research rotations. The Graduate Advisory Committee and Department Head must approve the selections. Each lab rotation should last 4-8 weeks. They provide first-hand knowledge of faculty research areas and serve as a basis for choosing a Research Advisor (major professor). Students in the M.S. are not required to conduct research rotations, due to short time frame of the program.

B. Selection of a Research Advisor (major professor)

By the end of the fall semester of the second academic year, each student should have chosen a Research Advisor from among the graduate faculty, with whom to conduct dissertation research. The selection is made by listing a first choice and an alternate choice in a letter to the Graduate Advisory Committee. Every effort will be made to place the student in the laboratory of his/her first choice, provided that the faculty member is agreeable and that space and funds are available to support the student’s research. Faculty members who accept Ph.D. students are expected to provide them with a Research Assistantship. After successfully completing the Qualifying Examinations (Part VI.), the stipend may be supplemented by $1,000 from a research grant. The department is not obligated to pay this supplement for students who are not paid from grants.

C. Selection of Research Advisory Committee

Members of the Research Advisory Committee should be established soon after selection of the Research Advisor, in conjunction with the Advisor. The members should have expertise in research, especially in the areas related to the student’s interests. The Committee must be approved by the Graduate Advisory Committee. For Ph.D. students, the Advisory Committee must include at least five members of the graduate faculty at LSUHSC-Shreveport: the Research Advisor, two or three additional departmental faculty members, and one or two faculty members of another basic science department. A faculty member from another institution can serve en lieu of one of the departmental or other basic science members. Additional faculty members, including clinical faculty, can also serve as
nonvoting members. For M.S. students, the Committee must include the Research Advisor, one other departmental member of the graduate faculty, and a graduate faculty member from another department. The Research Committee provides advice and support on the student’s research, monitors the development of the student into a productive and competent investigator, and evaluates the student’s progress. The Committee must meet at least once annually, and the Research Advisor is expected to provide a progress report to the Graduate Program Director at the end of each academic year. The Committee also conducts the Ph.D. Qualifying and Preliminary Exams, Dissertation Defense, and defense of the M.S. thesis. The Graduate Program Director should be present during oral portions of Exams and Defenses.

VIII. COURSEWORK AND COURSE POLICIES OF THE DEGREE PROGRAMS

A. Curriculum
Each student is expected to know human anatomy and to understand the concepts, experimental approaches, and recent advances in cell biology and their area of research specialization. **It is highly recommended that PhD students matriculate in the summer. However, the program can accommodate students who matriculate in other semesters.** The Graduate School website provides detailed descriptions of all courses offered by the Department and School. Departmental courses are also described in

B. Required and Elective Courses
**Doctoral and M.S. students are required to earn 22 or 20 credit hours, respectively, from letter-graded courses.** The required letter-graded courses and other courses that are required by the Department are indicated by **bold type** in Section IV-F. Required departmental courses are described on in Sec X. Elective courses are indicated by normal type. Courses that are not listed can be taken instead if pre-approved by the Graduate Advisory Committee and Research Advisor. Numbers of other credit hours from S/U-graded and research courses must comply with policies of the School of Graduate Studies.

C. Transfer of Graduate Credit
Upon request, a student might be permitted to transfer credit for some of the required courses. The transfer must be approved by the departmental Graduate Advisory Committee and cannot exceed the credit hours permitted by the School of Graduate Studies.

D. Grading and Withdrawal from Courses
The Department of Cellular Biology & Anatomy uses a scale of 90-100 **A**, 80-89 **B**, 70-79 **C**, and below 70 as failing (**F**). Other grading policies and policies for withdrawal from courses comply with policies of the School of Graduate Studies

E. Leave
Vacation and sick leave must be reported to the Department Office. Graduate students are allowed two weeks (10 working days) of vacation leave each academic year, including the summer session. Each student must seek permission from the Graduate Program Director or Research Advisor at least one week prior to leaving on vacation. In unusual circumstances, additional leave time might be granted, but it must be approved in advance by the Research Advisor and Graduate Advisory Committee. Students who take vacation or extra leave without permission could lose their stipends and be expelled from the program.

F. Summary of the Ph.D. Curriculum

<table>
<thead>
<tr>
<th>Year 1 Summer Semester</th>
<th>Credits</th>
<th>Grading</th>
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<tbody>
<tr>
<td>CEBIO 260 Comprehensive Human Structural Biology</td>
<td>5</td>
<td>L</td>
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<tr>
<td>CEBIO 240 Research Methods (Lab Rotation)</td>
<td>1</td>
<td>S/U</td>
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<tr>
<td>Year 1 Fall Semester</td>
<td>Credits</td>
<td>Grading</td>
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<tr>
<td>CEBIO 266 Essential Neuroanatomy for Basic Scientists</td>
<td>2</td>
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<tr>
<td>IDSP 111 Basic Biochemistry, Molecular and Cellular Biology I</td>
<td>2</td>
<td>L</td>
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<tr>
<td>IDSP 211 Foundations of Biomedical Science, General Principles</td>
<td>1</td>
<td>L</td>
</tr>
<tr>
<td>IDSP 112 Basic Biochemistry, Molecular and Cellular Biology II <em>(Consult Graduate Program Director)</em></td>
<td>2</td>
<td>L</td>
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<tr>
<td>CEBIO 250 Research Methods (Lab Rotation)</td>
<td>1-2</td>
<td>S/U</td>
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<tr>
<td>CEBIO 289 Current Topics in Cell Biology (Journal Club)</td>
<td>1</td>
<td>S/U</td>
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<tr>
<td>CEBIO 290 Seminar</td>
<td>1</td>
<td>S/U</td>
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<tr>
<th>Year 1 Spring Semester</th>
<th>Credits</th>
<th>Grading</th>
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<tbody>
<tr>
<td>CEBIO 216 Human Developmental Biology (Embryology)</td>
<td>3</td>
<td>L</td>
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<tr>
<td>IDSP 114 Cell Biology <em>(Consult Graduate Program Director)</em></td>
<td>2</td>
<td>L</td>
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<tr>
<td>ISDP 115 Molecular Signaling <em>(Consult Graduate Program Director)</em></td>
<td>1</td>
<td>L</td>
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<tr>
<td>CEBIO 250 Research Methods (Lab Rotation)</td>
<td>1-4</td>
<td>S/U</td>
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<tr>
<td>CEBIO 289 Current Topics in Cell Biology (Journal Club)</td>
<td>1</td>
<td>S/U</td>
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<tr>
<td>CEBIO 290 Seminar</td>
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<td>S/U</td>
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<tr>
<th>Year 2 Summer Semester</th>
<th>Credits</th>
<th>Grading</th>
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<tbody>
<tr>
<td>IDSP 218 Foundations of Biomedical Science, Nervous System</td>
<td>2</td>
<td>L</td>
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<tr>
<td>IDSP 240 Philosophical and Ethical Issues in Science</td>
<td>1</td>
<td>S/U</td>
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<tr>
<td>CEBIO 250 Research Methods (Lab Rotation)</td>
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<td>S/U</td>
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<tr>
<th>Year 2 Fall Semester</th>
<th>Credits</th>
<th>Grading</th>
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<tbody>
<tr>
<td>CEBIO 200C Integrative Structural Biology (Histology)</td>
<td>3</td>
<td>L</td>
</tr>
<tr>
<td>IDSP 212 Foundations of Biomedical Science, Cardiovascular System</td>
<td>2</td>
<td>L</td>
</tr>
<tr>
<td>IDSP 216 Foundations of Biomedical Science, Gastrointestinal System <em>(Consult Research Advisor)</em></td>
<td>1</td>
<td>L</td>
</tr>
<tr>
<td>IDSP 235A or B Grant Writing</td>
<td>1</td>
<td>L or S.U</td>
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<tr>
<td>CEBIO 289 Current Topics in Cell Biology (Journal Club)</td>
<td>1</td>
<td>S/U</td>
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<tr>
<td>CEBIO 290 Seminar</td>
<td>1</td>
<td>S/U</td>
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<tr>
<td>CEBIO 299 Research Proposal <em>(Qualifying and Preliminary Exams; Preliminary Exam must be completed in the enrolled semester)</em></td>
<td>3</td>
<td>S/U</td>
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<tr>
<td>CEBIO 400 Dissertation Research</td>
<td>1</td>
<td>S/U</td>
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<tr>
<th>Year 2 Spring Semester</th>
<th>Credits</th>
<th>Grading</th>
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<tbody>
<tr>
<td>IDSP 226 Basic Statistics</td>
<td>1</td>
<td>L</td>
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<tr>
<td>IDSP 227 Advanced Statistics</td>
<td>1</td>
<td>L</td>
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<tr>
<td>IDSP 213 Foundations of Biomedical Science, Renal System <em>(Consult Research Advisor)</em></td>
<td>1</td>
<td>L</td>
</tr>
<tr>
<td>IDSP 214 Foundations of Biomedical Science, Respiratory System <em>(Consult Research Advisor)</em></td>
<td>1</td>
<td>L</td>
</tr>
<tr>
<td>IDSP 217 Foundations of Biomedical Science, Endocrine System <em>(Consult Research Advisor)</em></td>
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### G. Summary of the M.S. Curriculum

<table>
<thead>
<tr>
<th>Year 1 Fall Semester</th>
<th>Credits</th>
<th>Grading</th>
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<tbody>
<tr>
<td>CEBIO 200C Integrative Structural Biology (Histology)</td>
<td>3</td>
<td>L</td>
</tr>
<tr>
<td>CEBIO 261 Human Structural Biology (Body Cavities)</td>
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<td>Course</td>
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<tr>
<td>IDSP 211 Foundations of Biomedical Science, General Principles</td>
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<tr>
<td>CEBIO 289 Current Topics in Cell Biology (Journal Club)</td>
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<td>S/U</td>
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<tr>
<td>CEBIO 290 Seminar</td>
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**Year 1 Spring Semester**

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<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CEBIO 216 Human Developmental Biology (Embryology)</td>
<td>3</td>
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<tr>
<td>CEBIO 262 Human Structural Biology (Musculoskeletal, Head &amp; Neck)</td>
<td>3</td>
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<tr>
<td>CEBIO 265 Human Neuroanatomy</td>
<td>2</td>
<td>L</td>
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<tr>
<td>CEBIO 289 Current Topics in Cell Biology (Journal Club)</td>
<td>1</td>
<td>S/U</td>
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<tr>
<td>CEBIO 290 Seminar</td>
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**Year 1 Summer Semester**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>IDSP 240 Philosophical and Ethical Issues in Science</td>
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<td>S/U</td>
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<tr>
<td>CEBIO 300 Thesis Research</td>
<td>3-5</td>
<td>S/U</td>
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**Year 2 Fall Semester**

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<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>IDSP 212 Foundations of Biomedical Science, Cardiovascular System</td>
<td>2</td>
<td>L</td>
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<tr>
<td>CEBIO 289 Current Topics in Cell Biology (Journal Club)</td>
<td>1</td>
<td>S/U</td>
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<tr>
<td>CEBIO 290 Seminar</td>
<td>1</td>
<td>S/U</td>
</tr>
<tr>
<td>CEBIO 300 Thesis Research</td>
<td>5-7</td>
<td>S/U</td>
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<tr>
<td>IDSP 216 Foundations of Biomedical Science, Gastrointestinal System</td>
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<tr>
<td>(Consult Research Advisor)</td>
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<tr>
<td>IDSP 219 Foundations of Biomedical Science, Inflammation, Immunity,</td>
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<td>and Infection (Consult Research Advisor)</td>
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**Year 2 Spring Semester**

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<th>Course</th>
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<td>CEBIO 289 Current Topics in Cell Biology (Journal Club)</td>
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<tr>
<td>CEBIO 290 Seminar</td>
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<tr>
<td>CEBIO 300 Thesis Research</td>
<td>1-2</td>
<td>S/U</td>
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<tr>
<td>IDSP 114 Cell Biology (Consult Research Advisor)</td>
<td>2</td>
<td>L</td>
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<tr>
<td>IDSP 226 Basic Statistics (Consult Research Advisor)</td>
<td>1</td>
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<tr>
<td>IDSP 227 Advanced Statistics (Consult Research Advisor)</td>
<td>1</td>
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<tr>
<td>IDSP 213 Foundations of Biomedical Science, Renal System (Consult</td>
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<td>Research Advisor)</td>
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<td>IDSP 214 Foundations of Biomedical Science, Respiratory System (</td>
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<td>Consult Research Advisor)</td>
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**Year 2 Summer Semester**

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<th>Course</th>
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<tbody>
<tr>
<td>CEBIO 200 Thesis Research</td>
<td>6</td>
<td>S/U</td>
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</table>

(*The thesis MUST be defended and the Final Exam held the same semester.*

**IX. DEPARTMENTAL SEMINAR PROGRAM**

105
A. Importance of the Seminar Program

Seminars provide students, post-doctoral researchers and faculty with the opportunity to discuss research findings and new developments in the disciplines of cell biology on a regular basis. By attending and presenting seminars, graduate students learn how to learn how to present and discuss experimental data and hone their skills as scientists and teachers.

B. Seminar Policy

Students are required to enroll in the departmental seminar course each fall and spring semester. **Beginning in the second year, each graduate student is required to present a seminar during the fall or spring seminar series.** All graduate students are expected to participate actively in seminar by contributing to the discussion. The topic for presentation and the date of the seminar must be approved by the faculty member in charge of seminar program (Seminar Director). Students who fail to have topics approved prior to the seminar date will be assigned a topic by the Seminar Director. Beginning students typically discuss a topic related to their area of interest that has been selected with advice of the Faculty Advisor or faculty member in charge of the seminar series. Second-year students are expected to present a seminar in the spring semester. Before the beginning of the fall semester of the third-year, students are expected to have presented data and a detailed description of the aims of the Research Proposal. Students who anticipate completing the PhD should present a final seminar as a component of the Dissertation Defense.

C. Suggested Format for the Seminar

A research seminar typically begins with an introduction to state the questions being asked and includes background information that can be understood by a broad scientific audience. The background information should be derived from carefully selected papers presented in a critical and informative manner. The student is expected to understand key papers related to the seminar topic, including the rationale for the research and experimental approaches. However, the seminar should not be a lecture or an overview. Rather, it should consist of a focused presentation of the rationale, experimental design and results, and a detailed discussion of the impact and limitations of the research findings.

X. QUALIFYING AND PRELIMINARY EXAMS FOR THE DOCTORAL DEGREE

The qualifying process for doctoral students in the Department of Cellular Biology & Anatomy consists of 1) successful completion of core and elective coursework; 2) a Qualifying Exam presented during the second year; 3) preparation and oral defense of the Research Proposal prior to the start of the third year.

A. Qualifying Exam

The Qualifying Exam consists of an NIH R01-style proposal on the research the student intends to conduct for the dissertation. Details of the proposal content are established by the Graduate Advisory Committee and can be obtained from the Graduate Program Director. The proposal should minimally include a detailed Research Plan (Specific Aims, Significance, Preliminary Studies, Experimental Design and Methods), a cited literature section, and a Biographical Sketch. It should be prepared in close collaboration with the Research Advisor and advice from the Research Advisory Committee. The proposal must be submitted to the Graduate Advisory Committee, who will have up to two weeks for review, although every effort will be made to shorten the review period. The Committee will determine if the proposal meets Departmental standards. If minor weaknesses are identified, a provisional passing grade could be granted pending satisfactory revision. The Program Director will return the Qualified Proposal to the student for distribution to the Research Advisory Committee.
Students awarded a failing grade for the Qualifying Exam will be dismissed from the Program.

B. Preliminary Exam

The Preliminary Exam minimally consists of a seminar on the Qualified Proposal before the department and academic community at large. The seminar should describe and defend the rationale and planned experiments of the research plan. However, students should also be prepared for in-depth questions on the area of research and more general question on cellular biology. The seminar is followed by an oral defense before the Research Advisory Committee. An outside member can attend by teleconference, but all other Committee members should be present. A copy of the Qualified Proposal should be submitted to the Committee at least two weeks before the seminar and oral defense. **Students are expected to defend the proposal before the beginning of the third academic year.**

In addition to the seminar and oral defense, the Research Advisor can require a student to sit for a one-to-two day written portion of the Preliminary Exam, consisting of essay questions submitted by members of the Research Advisory Committee. Following completion of the seminar, oral exam, and written exam, the Committee will determine if the student has passed. A passing grade requires agreement of four voting members of the Committee that the student has successfully defended the proposal in the seminar and oral defense and has also exhibited sufficient breadth and depth and of knowledge on research area, both orally and in any written exam. If fewer than four Committee members agree, the Committee can recommend a provisional passing grad or failure. A provisional pass can require revision of the proposal and a second oral or written exam. The Committee will provide the student with reasons why revision of the proposal and additional exams are required. Students pass all components of the Preliminary Exam become “Doctoral Candidates”.

C. Procedure for Appeal

The Graduate Advisory Committee and Research Advisory Committee must provide students who fail the Qualifying and Preliminary Examination, respectively, with the reasons for failure, in writing. Failing students are subject to dismissal. However, a student may appeal to the Graduate Advisory Committee for redress. A majority approval of the Committee is required for student to retake any portion of the Qualifying and Preliminary Exams. Students fail the oral portion of the Exams will be re-examined orally; this must occur within two months of the original exam. Failure to pass the second exam will result in dismissal from the program.

XI. PREPARATION AND DEFENSE OF THE DOCTORAL DISSERTATION

A. Quality of the Doctoral Research

The dissertation research must be a contribution to the field generating original findings addressing a fundamental question or questions. It is expected that the major substance of the study will be published in a well-regarded journal and that the student will present his/her research findings at regional, national or international conferences.

B. Preparation and Defense of the Doctoral Dissertation

The dissertation should be prepared with guidance from the Research Advisor and Advisory Committee. Upon completion of the dissertation, the student should provide copies to all members of the Committee at least two weeks before the scheduled date of the Defense and Final Examination. During the time, the student should be available to provide information or clarifications requested by Committee members. The Research Advisor should contact each member of the Advisory Committee and determine whether the dissertation is sufficiently satisfactory to allow scheduling of the Defense. If two or more members of the Committee deem the dissertation to be incomplete and/or of poor quality, the Committee will recommend specific changes that must be made prior to scheduling the Defense.

C. Defense and Final Examination

Prior to the Dissertation Defense and Final Examination, a copy of the dissertation must be made available to all departmental faculty members. Faculty can submit questions to the Research
Advisory Committee for answering at the Defense and also ask them at the Final Research Seminar.

To schedule the Defense and Final Examination, the Advisor must complete a "Request for Dissertation/Thesis Defense and Final Examination" form and submit it and a copy of the dissertation abstract to the Department Head, who must review the information, sign the form and submit the documents to the Dean. The approved form and abstract must be received by the Dean two weeks prior to the date of the Defense and Final Examination.

The Defense and Final Examination should focus on the dissertation research and on the written document, and it will be conducted by the Research Advisory Committee. Students can expect to answer questions about the rationale for the work, the final results and validity of the conclusions. At the discretion of the Advisory Committee, the Defense and Final Examination might include general questions on the major and minor fields of study, but this is not common. After the student has answered questions about the dissertation, the Advisory Committee will discuss the dissertation and final revisions that may be necessary and the voting members will vote by ballot whether or not to accept the dissertation (with all recommended revisions). No more than one negative vote is permitted. If the dissertation is deemed unacceptable or the student is judged to have failed the oral examination, the Advisory Committee must provide the student with a written explanation of the reasons for failure. Copies must also be provided to the Head of the Department, the Graduate Program Director, and the Dean of the Graduate School.

D. Final Research Seminar and Certification

Students are required to present a Final Research Seminar before the department and academic community at large. Students typically present this seminar before the Defense and Final Examination when they are deemed ready by and with permission of the Advisory Committee. The purpose of the final seminar is to allow the student to demonstrate the high quality of the research and to allow oral examination of the student by the academic community. When the student has passed the Dissertation Defense/Final Examination and the Final Research Seminar, he/she will be certified to the Graduate Faculty and Chancellor as having met all requirements for the degree of Doctor of Philosophy in Cellular Biology & Anatomy. The student's Research Advisor must complete the form "Dissertation/Thesis Defense - Final Examination Report" and have the form signed by each member of the student's Advisory Committee and by the Department Head, who will forward the form to the Dean.

XII. OTHER SCHOLARLY ACTIVITIES

Graduate students are also expected to play an active role in maintaining the research environment of the department and university. In addition to research, coursework, and seminars, all graduate students participate in the Cellular Biology journal club each fall and spring semester. Attendance is mandatory and any absence must be pre-approved by the journal club director. Faculty advisors may also require students to participate in other journal clubs. Ph.D. students are expected to stay abreast of major developments in their field and in related biomedical sciences, present research findings at professional conferences, assist other students and staff use and maintenance of instruments, and assist in recruiting new students.

XIII. TEACHING

Teaching is an important aspect of both the Ph.D. and M.S. training programs, and all students are required to participate in teaching courses offered by the Department of Cellular Biology & Anatomy. In addition, student are expected assist in teaching laboratory procedures and other skills to new graduate students.
IX. APPROPRIATE CONDUCT AND DRESS

Students must maintain high ethical standards in their personal conduct toward faculty, fellow students and staff. Research data must be maintained in a dated notebook with full explanation of methods and procedures used. Notebooks should be available for inspection at any time by the faculty and should not be removed from campus.

During the normal working hours (8am - 5pm), students should dress appropriately for a professional school. Shorts and tank tops cannot be worn during the workday. In laboratories, appropriate dress can include a lab coat and leather shoes with closed toes, gloves, and a mask, depending on safety requirements. In compliance with safety requirements, no shorts, eating or drinking are permitted in research laboratories at any time.

X. DESCRIPTION OF COURSES

CEBIO 200C Integrative Structural Biology (3 credits, letter grade). An introduction to the microscopic anatomy and function of human tissues. Course director: Dr. David DeSha.

CEBIO 216 Human Developmental Biology (3 credits, letter grade). Lectures on human development correlated with films and laboratory demonstrations. Participation of students will be encouraged in the form of discussions and presentations. Course director: Dr. David DeSha

CEBIO 223 Molecular Basis of Disease (2 credits, letter grade). The course will serve to integrate basic science knowledge obtained by students in the first year of graduate school with mechanisms of disease progression. The course will consist of five modules. Module 1, taught by the basic science faculty in the Division of Research of the Department of Pathology, will consist of 10 hours of lectures on the cellular response to disease from the basic science perspective, i.e., the integration of the basic science information gained in year 1 of the curriculum onto the context of disease initiation and progression. Modules 2 through 5 will focus on four "benchmark" diseases. Each module will consist of seven lectures, two of which will be given by faculty with significant expertise in the clinical manifestations of the disease and five by the Basic Science Faculty within the Division of Research in Pathology. The course will emphasize: 1) what is known about the disease from a clinical perspective; 2) unanswered clinical questions that need to be addressed from a basic science perspective. The Basic Science faculty involved in the course will give lectures that 1) summarize what is known about the basic mechanisms of disease initiation and progression; 2) discuss how adverse modulation of well-known cellular pathways/events contributes to disease progression; 3) provide insights to necessary venues of translational research. This course is part of the Pathology track in the Department. Course director: Dr. Kevin McCarthy.

CEBIO 224 Molecular Basis of Disease Journal Club (1 credit, S/U). The journal club serves to integrate basic science knowledge with mechanisms of disease progression. The journal club consists of weekly presentations and discussions by students and faculty of current research reports. For students enrolled in the Cell Biology Course "Molecular Basis of Disease", enrollment in the journal club is mandatory. Each student will be expected to present and discuss at least one paper during the semester. Evaluation criteria for students enrolled in the journal club for academic credit include the quality of student presentations and the student participation in weekly discussions during the journal club. This course is part of the Pathology track in the Department. Course director: Dr. Kevin McCarthy

CEBIO 230 Experimental Cell Biology I (3 credits, letter grade). Lecture and laboratory course for the design and implementation of experiments in cell biology. Includes instruction in animal handling and care, morphologic tissue preparation, computerized image-analysis, experimental design, data management and prepublication preparation. The course involves extensive student involvement and a laboratory report. Course director: Dr. Kathryn Hamilton

CEBIO 250 Research Methods (2-8 credits, S/U). A laboratory course in which students rotate
through faculty laboratories and become acquainted with the research are and laboratory routines in each. Course Director: Dr. Kathryn Hamilton

**CEBIO 260 Comprehensive Human Structural Biology** (5 credits, letter grade). This is a lecture and human dissection based course, which aim is to provide and in-depth knowledge of the structure and function of the human body. The course consists of 37 lecture hours and 39 dissection laboratories of two hours each. There will be four multiple-choice exams and four practical exams based on the topics covered. Course director: Dr. Terrel Master

**CEBIO 261 Human Structural Biology (Body Cavities)** (3 credits, letter grade). In this course, students will be given a total of 24 lecture hours during which they will be presented with the structures of the organs contained within the thoracic, abdominal, and pelvic cavities as well as with the topographic relationships existing between these organs and the their blood and nerve supply. In a total of 15 laboratories of 2 or 3 hours each, students will dissect a human body to demonstrate the structures discussed during lectures. There will be two exams made up of multiple choice and essay questions and two practical exams in which the students will have to identify tagged structures on a human cadaver. Course director: Dr. Terrel Master

**CEBIO 262 Human Structural Biology (Musculoskeletal and Head & Neck)** (3 credits, letter grade). In this course, students will be given a total of 22 lecture hours during which they will learn the different components of the musculoskeletal system of the entire human body as well as the structures of the head and neck. Students will also be given an in depth knowledge of the topographic relationships existing between the structures of the head and neck and will learn the blood and nerve supply of the musculoskeletal system and of the head and neck. In a total of 19 laboratories of 2 or 3 hours each, students will dissect a human body to demonstrate the structures discussed during lectures. There will be three exams made up of multiple choice and essay questions and three practical exams in which the students will have to identify tagged structures on a human cadaver. Course director: Dr. Terrel Master

**CEBIO 265 Human Neuroanatomy** (2 credits, letter credit). The course is designed to meet the specific needs of graduate students for knowledge of the structure and function of the human nervous system. The course is divided into two parts – (1) Neurohistology & Sensory Systems, and (2) Motor Systems & Cerebral Cortex. Lectures are complemented with a wet laboratory in which whole brains and spinal cords are examined, and with other laboratory material in the form of color slides of horizontal and coronal brain sections and illustrations of ventricles, meninges and neurohistology. Didactic information is reinforced as students work through sample case studies. There are two written exams and two practicals. Course director: Dr. William Mayhan

**CEBIO 266 Essential Neuroanatomy for Basic Scientists** (2 credits, S/U). This course includes 25 1-hr lectures and seven 1-hr labs of the Allied Health Neuroanatomy course. The course also includes material tailored for graduate students, including an optional 1-2 hr review of head and neck anatomy (for students who have not had gross anatomy) and four, 2-hr labs comparing rodent and human neuroanatomy. Students learn the major anatomical divisions and functions of the vasculature and ventricles; cerebrum, cerebellum, midbrain and brainstem; sensory and motor systems; limbic system, hypothalamus, and autonomic nervous system; neural correlates of motor dysfunction. In the lab sessions, students learn to identify major structures and systems and compare the human and rodent systems. Course Director: Dr. Kathryn Hamilton

**CEBIO 289 Current Topics in Cell Biology** (1 credit, S/U). During the fall and spring semesters, students will participate in a course offered in the format of a journal club, in which significant recent contributions to the research literature are discussed. This course offers students an opportunity to keep abreast of current research and to develop public speaking skills. The interpretation of results and critical analysis of experimental data will be emphasized. This course can be repeated for credit. Course director: Dr. Edward Glasscock
CEBIO 290 Seminar (1 credit, S/U). Students attend and participate in seminars conducted by the Department of Cellular Biology and Anatomy. Emphasis is placed upon current research findings. Periodically, students also present a seminar on their current research or on a subject under discussion. Course director: Dr. Hong Sun

CEBIO 299 Research Proposal in Cell Biology (3 credits, S/U). A required course for all doctoral candidates in which the student prepares, in National Institutes of Health grant-applications format, a written proposal on the candidate's doctoral problem. The proposal is comprised of sections on: a) background of the problems, b) specific aims, c) rationale of the experimental approach, d) preliminary findings, and e) experimental methods. This proposal will be reviewed by the student's major advisor and his examining committee. After the proposal is approved, the student may continue his dissertation research. Any deviation from the program outlined in the proposal must be approved by the student's examining committee. Course director: Dr. Kathryn Hamilton

CEBIO 300 Thesis Research (1-6 credits, S/U). Students in the Clinical Anatomy track within the Master in Biomedical Sciences gain in-depth experience in research methodology and implementation of a scope commensurate with completion of an M.S. thesis. Research is conducted in the laboratory of a departmental member of the graduate faculty approved by the Graduate Advisory Committee and Chair of the Department. The number of credit hours must be stated at registration. Course director: Dr. Kathryn Hamilton

CEBIO 400 Dissertation Research (1-9 credits, S/U). Students in the doctoral program gain in-depth experience in research development, design, methodology and implementation of a scope commensurate with generating a dissertation, under the guidance and direction of an approved faculty mentor and Research Advisory Committee. Research is conducted in the laboratory of a departmental member of the graduate faculty approved by the Graduate Advisory Committee and Chair of the Department. The number of credit hours must be stated at registration. Course director: Dr. Kathryn Hamilton

GRADUATE FACULTY OF THE DEPARTMENT

I. PRIMARY FACULTY
Glasscock, Edward Ph.D., Assistant Professor of Cellular Biology & Anatomy
Research interests: Molecular mechanisms contributing to neurocardiac dysfunction in mouse models of epilepsy and sudden unexpected death in epilepsy (SUDEP)

Hamilton, Kathryn A. Ph.D., Associate Professor of Cellular Biology & Anatomy
Research Interests: Structure and function of the olfactory system; contributions of excitatory and inhibitory synapses to integration of information in the brain; neuronal plasticity and recovery from trauma and disease

Krzywanski, David M. Ph.D., Assistant Professor of Cellular Biology & Anatomy
Research Interests: Exploring mitochondrial functional variation as a contributor to racial differences in cardiovascular disease susceptibility

Terrel Master, Ph.D., Assistant Professor of Cellular Biology & Anatomy
Research Interests: Human anatomy

Mayhan, William G. Ph.D., Professor and Chair
Research Interests: Examining endothelial and neuronal dysfunction during disease states

McCarthy, Kevin J. Ph.D., Professor of Cellular Biology & Anatomy and Pathology
Research Interests: Extracellular matrix molecules in diabetic glomerulosclerosis

Panchatcharam, Mani. Ph.D., Assistant Professor of Cellular Biology & Anatomy
Research interests: Lipids that play a major factor in blocking blood vessels leading to heart attack

Penny, Joseph E. Ph.D., Professor of Cellular Biology & Anatomy
Research Interests: Human and comparative anatomy

Sun, Hong. Ph.D., Assistant Professor of Cellular Biology & Anatomy
Research Interests: Influences of alcohol consumption and obesity on cerebrovascular structure, function and ischemic brain injury

II. ADJUNCT FACULTY

Kevil, Christopher K. Ph.D., Professor of Pathology, LSUHSC-Shreveport
Research Interests: Regulation of vascular redox biology involving nitric oxide and hydrogen sulfide with regard to blood vessel growth and chronic inflammation

Orr, Anthony W. Ph.D., Associate Professor of Pathology, LSUHSC-Shreveport
Research Interests: Adhesion signaling in vascular cell biology and atherosclerosis

DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY
http://www.sh.lsuhsc.edu/microbiology
http://www.sh.lsuhsc.edu/cobre

Dr. Dennis J. O’Callaghan, Boyd Professor and Head (Chairman)
The Doctoral Program of the Department of Microbiology and Immunology is quite demanding, but is designed to train the student in the art and science of biomedical research and to give him/her the experience and training to become an independent biomedical researcher who can address fundamental questions in the discipline of microbiology at the molecular and cellular levels. Our students work directly toward the Ph.D. degree in a curriculum that has a considerable coursework component, but its major emphases are to teach the student how to be a "problem solver" by doing independent research at the bench; how to organize and present information by participating in journal clubs and seminar programs (and eventually by presenting papers at major scientific meetings); and how to design experiments and prepare research applications by writing research proposals and scientific manuscripts for publication. All of our students are supported by a stipend and receive a waiver of all tuition.

The research programs within the Department of Microbiology and Immunology are well-supported by major research grants from national funding agencies, such as the National Institutes of Health (NIH). The ongoing research of the present 17 faculty members spans the disciplines of virology, immunology and bacteriology and emphasizes the use of molecular approaches and the latest biotechnologies to address fundamental questions. In addition to research grants to individual faculty members, the NIH has awarded funding of more than $18 million to establish and support the Center for Molecular and Tumor Virology (CMVT) within the Department. This NIH Center grant supports the expansion of research facilities and individual research programs of several faculty members who seek to understand at the molecular level how viruses mediate different disease outcomes.

Louisiana State University Health Sciences Center (LSUHSC) at Shreveport is a thriving and expanding academic center for research, for the training of students in biomedical research and the health care professions, and for health care delivery to residents of Louisiana and the Ark-La-Tex region. LSUHSC is an integral part of the LSU System of publicly supported higher education and is comprised of the School of Graduate Studies, School of Medicine, and School of Allied Health Professions. The Research Core Facilities of LSUHSC are outstanding and offer the latest biotechnologies in biomedical research from genomics to proteomics, to micro positron emission tomography, to laser capture microdissection. The 96 acre campus in Shreveport offers opportunities for research interactions with specialized clinical components such as the LSUHSC Feist-Weiller Cancer Center, Center for Cardiovascular Diseases and Science, Center of Excellence for Arthritis and Rheumatology, Regional Burn Center, level 1 Trauma Center, Bone Marrow Transplantation Unit, Positron Emission Tomography Facility, Gamma Knife Imaging Center Human Retrovirus (AIDS) Clinic, Hepatitis C Research and Treatment Center, 6 Intensive Care Units and some 65 outpatient and medical specialty clinics.

THE CENTER FOR MOLECULAR AND TUMOR VIROLOGY
In addition to research at the Departmental level, which is interactive and diverse, several Centers are organized as interdepartmental affinity groups of basic and clinical researchers who focus investigations into target areas of research. Within the Department of Microbiology and Immunology, the National Institutes of Health (NIH) has provided funding of more than $18 million to establish a Center for Molecular and Tumor Virology (CMTV). The virology faculty members within the CMTV
use molecular approaches to understand how interactions between viral and cellular genes mediate
different outcomes of infection, which vary from cell killing to persistent infection to transformation
leading to tumor formation. The faculty of the CMTV has grown to 19 full-time members who direct
independent research programs that address fundamental questions about the molecular biology,
oncogenic properties, immunology, and pathogenesis of many viral pathogens. These LSUHSC
virologists hold faculty positions in the Departments of Microbiology and Immunology, Molecular and
Cellular Physiology, Pediatrics, and Otolaryngology and Head and Neck Surgery.

Other faculty members within the Department of Microbiology and Immunology interact in these
efforts of the CMTV and also carry out independent research in the areas of bacteriology and
pathogenesis of bacterial disease, immunology, and cancer research. These research programs are also
supported by major extramural grants and seek to understand how the immune system develops at the
molecular and cellular levels, how a variety of bacterial pathogens cause disease at the molecular level,
how molecular approaches may allow new vaccines and diagnostic reagents to be developed, and
molecular mechanisms that allow tumor cells to spread.

ADMISSION REQUIREMENTS: Students who wish to enter the doctoral graduate program in this
Department are expected to meet the following admission requirements:
* Baccalaureate degree from a college or university approved by a regional accrediting agency;
* An undergraduate grade point average of 3.0 on a 4-point scale and a 3.0 grade point average for any
  graduate coursework;
* Completion of the Verbal, Quantitative, and Analytical Writing parts of the Graduate Record
  Examination with scores that are competitive.

The above are minimum requirements, and the Department usually accepts only students whose
achievements exceed these minimum requirements. In addition, prospective students are normally
invited to interview with the Departmental faculty prior to acceptance into the program.

Admission of a student can be one of two types: Unconditional Admission - An acceptable candidate
who meets all of the admission requirements is given this kind of admission. Probationary Admission
- A candidate who fails to meet all requirements but who is judged by the Department Head, Faculty,
and the Dean of the Graduate School to show promise for successful graduate work may be considered
for probationary admission. A student accepted on probationary admission must maintain a B average
to remain in the program. Should the overall grade point average be below 3.0, the student will be
dismissed from the program.

INFORMATION REQUIRED FOR APPLICATION:
* Application form;
* An OFFICIAL transcript from all colleges and universities attended;
* At least three Evaluation Forms, mailed directly to the Department, by faculty members who know
  the applicant well enough to judge his/her potential as a doctoral student;
* OFFICIAL scores of the Graduate Record Examination;
* OFFICIAL score of the TOEFL examination (international students only).
GRADUATE RECORD EXAMINATION: The applicant should inform the Educational Testing Service to have his/her GRE scores forwarded to School of Graduate Studies, Louisiana State University Health Sciences Center, 1501 Kings Highway, Shreveport, LA 71130. Our code number is R 6356 and the sub code number for Microbiology and Immunology is 0212. The Department requests that the student provide his/her GRE scores to the Department as soon as possible either by telephone or email. NOTE: When mailing documents, please be aware that we are LSU Health Sciences Center - Shreveport (not LSU – Shreveport, the undergraduate campus).

TEST OF ENGLISH AS A FOREIGN LANGUAGE: The TOEFL examination is required for admission of foreign students whose natural language is not English and who have not graduated from a university in the United States. The amount of reading and scientific writing required of students in the doctoral program is quite considerable. The student should inform the Educational Testing Service to have his/her TOEFL score mailed to the School of Graduate Studies, LSU Health Sciences Center, 1501 Kings Highway, Shreveport, LA 71130. Documents of personal financial responsibility are also required of all foreign students before a student visa application can be filed with the United States Immigration and Naturalization Service. This process requires a minimum of three months and can be initiated only after acceptance into the graduate program. Documents of financial responsibility must be filed with the application to the School of Graduate Studies.

INTERVIEW: Only students living in the USA are eligible for a Travel Grant to interview with the Department. Students living outside of North America are rarely considered for admission.

STIPEND: All full-time graduate students within the Department of Microbiology and Immunology at LSUHSC-S receive financial support in the form of a Research Stipend. Our students work directly toward the Ph.D. degree and are full-time doctoral students supported by a starting stipend of $26,000 plus tuition waiver.

TUITION WAIVER: Tuition is normally waived for all full-time graduate students. Tuition will not be waived for students who are paid from grants that expressly indicate that the grant will pay tuition. Tuition for Louisiana residents is considerably lower than that assessed for out-of-state students.

PREDOCTORAL FELLOWSHIPS of $28,000: Students who have completed the defense of their Research Proposal with the participation of an External Reviewer are eligible to compete for an Intramural Predoctoral Fellowship of $28,000 per year by submitting a research proposal that is reviewed by the Predoctoral Fellowship Committee. Students whose proposals were judged to be meritorious receive the Fellowship from one of three sources. Research related to cancer is funded by the Feist-Weiller Cancer Center (Carroll Feist Fellowship), research related to cardiovascular disease is supported by the Center for Cardiovascular Diseases and Sciences (Malcolm Feist Fellowship), and research in other disciplines is supported by an Ike Muslow Predoctoral Fellowship from the LSUHSC-S Research Council. Progress reports of the awarded fellowships may be renewed for a second and a third year on a competitive basis.

ALL STUDENTS MUST BE FULL-TIME STUDENTS: Graduate students receive stipends to allow them to devote all their time, energy, and talents to their research and graduate training. Therefore, it is expected that these students will not seek outside jobs and/or part-time employment. Students in financial difficulty should discuss this matter with the Department Head.
ACADEMIC STANDING: Students receiving financial support from the School, the Department, or a research grant must remain in good academic standing, make constant progress toward their degree, and follow the recommendations of their Advisory Committee and major Professor. Financial support may be withdrawn from students who fail to meet these basic requirements.

FEES AND HEALTH INSURANCE: All students are responsible for the payment of the University Activity Fee and must purchase Health Insurance or provide evidence of other health care coverage. Students are also responsible for other incidental fees such as costs of thesis and dissertation binding, microfilming and diploma costs, and other expenditures that are not covered by a tuition waiver. Every graduating student must provide a bound copy of the Ph.D. dissertation to the Departmental Library, the office of Graduate Studies, and the student’s Advisor.

PROGRAM OF STUDY FOR THE PH.D. DEGREE

An individualized program of study is developed for each graduate student through regular consultation with a faculty Advisory Committee. This program consists of lecture and laboratory courses, seminars, journal clubs, preparation of research proposals, and independent research. Upon entry into the Doctoral Program, the student becomes acquainted with the research activities of each faculty member and then selects three faculty research laboratories for rotating during the Fall semester. At the end of the first semester, the student selects the research laboratory in which he/she will complete a research project for submission in his/her dissertation. The Faculty Research Interests section, which is included in this booklet, lists the focus of research in each of the laboratories.

The program leading to the Ph.D. emphasizes research training at the molecular and cellular levels in several disciplines to prepare the student for a challenging career directing original independent research. While the program of study is tailored to the individual needs of the student, he or she is required to complete a series of core courses that provides a broad background in Biochemistry, Cell Biology, Genetics, Prokaryotic and Eukaryotic Molecular Biology, Immunology, Virology, Bacteriology, Pathogenesis of Infectious Diseases, and Research Technologies. The program also emphasizes the written and oral communication skills needed to excel in the scientific community. Active participation in departmental seminars and at least one of the four weekly journal clubs is required of all students. In addition, each student must prepare two research proposals as part of the process of learning how to design experiments, to evaluate the scientific literature in a critical manner, and to begin to master the skills of scientific writing. The most important components of the Ph.D. training program are the research project and dissertation. They are completed under the guidance of the student’s Faculty Advisor and Doctoral Advisory Committee and must represent original and independent scholarly work.

OUTLINE OF THE PH.D. PROGRAM

YEAR #1: FALL SEMESTER

Initiate Laboratory Rotations with Three Faculty Members Selected by the Student

IDSP #111: Basic Biochemistry: Molecular and Cellular Biology I (2 cr.)
IDSP #112: Basic Biochemistry: Molecular and Cellular Biology II (2 cr.)
IDSP #116: Methods in Biomedical Sciences: Biochemical and Molecular Methods (1 cr.)
IDSP #117: Methods in Biomedical Sciences: Recombinant DNA and Cell Biology (1 cr.)
MICRO #297: Immunology (3 cr.)
MICRO #291: Bacteriology and Molecular Pathogenesis I (3 cr.)
MICRO #298: Weekly Department Seminar
Rotations through the Journal Clubs
Roundtable on How to Prepare and Present a Seminar
Interaction with All Visiting Scientists and Seminar Speakers
By Mid-December, the Student Selects His/Her Faculty Advisor

YEAR #1: SPRING SEMESTER
IDSP #113: Genetics (1 cr.)
IDSP #114: Cell Biology (2 cr.)
IDSP #115: Molecular Signaling (1 cr.)
IDSP #119: Gene Expression (1 cr.)
MICRO #276: General and Molecular Virology (3 cr.)
MICRO #289: Molecular Pathogenesis of Infectious Diseases II (3 cr.)
MICRO #298: Seminar, Present First Seminar on a Library Topic (1 cr.)
Interaction with All Visiting Scientists and Seminar Speakers
Develop and Initiate the Dissertation Research Project
Join a Journal Club and Attend Weekly Meeting
Establish the Advisory Committee of Five Faculty Members by March 1\textsuperscript{st}
Have Initial Meeting with Advisory Committee by May 1\textsuperscript{st}

YEAR #1: SUMMER TERM
IDSP #240: Philosophical and Ethical Issues in Science (1 cr.)
Weekly Research Conference with Advisor and Members of the Laboratory
Conduct Research at the bench on the Dissertation Research Project
Interaction with All Visiting Scientists and Seminar Speakers
YEAR #2: FALL SEMESTER
MICRO #298: Seminar, Present Second Seminar on a Library Topic (1 cr.)
IDSP #235B: Grant Writing (1 cr.)
Research at the bench on the Dissertation Research Project
Weekly Journal Club
Weekly Research Conference with Advisor and Members of the Laboratory
Interaction with All Visiting Scientists and Seminar Speakers

YEAR #2: SPRING SEMESTER
Qualifying and Preliminary Examination: Write Proposal on Assigned Topic. Deadline: June 1
MICRO #298: Seminar, Present First Research Seminar (1 cr.)
Research at the bench on the Dissertation Research Project
Weekly Journal Club
Weekly Research Conference with Advisor and Members of the Laboratory
Interaction with all Visiting Scientists and Seminar Speakers

YEAR #2: SUMMER TERM
Research at the bench on the Dissertation Research Project
Weekly Journal Club
Weekly Research Conference with Advisor and Members of the Laboratory
Interaction with all Visiting Scientists and Seminar Speaker

YEAR #3: FALL SEMESTER
Seminar on the Doctoral Research Proposal
Review of Doctoral Research Proposal with Advisory Committee and Outside Reviewer
Research at the bench on the Dissertation Research Project
Weekly Journal Club
Weekly Research Conference with Advisor and Members of the Laboratory
Interaction with all Visiting Scientists and Seminar Speakers

FUTURE YEARS UNTIL GRADUATION
Outside Reviewer Visits to Review Research Proposal
Research at the bench on the Dissertation Research Project
Annual Seminar on Research
Weekly Journal Club
Write Manuscripts for Publication
Presentation of Research at Regional, National, and International Meetings
Write and Defend Dissertation
Weekly Research Conference with Advisor and Members of the Laboratory
Interaction with All Visiting Scientists and Seminar Speakers

FACULTY RESEARCH INTERESTS

Dr. Dennis J. O’Callaghan  
Boyd Professor and Head
Molecular Biology of Herpesvirus Replication and Viral Genes Essential for Pathogenesis and Virulence

Dr. Michelle Arnold  
Assistant Professor
Rotavirus Evasion of the Host Innate Immune Response
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<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Research Focus</th>
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<tbody>
<tr>
<td>Dr. Jason Bodily</td>
<td>Assistant Professor</td>
<td>Molecular Biology of the Human Papillomavirus</td>
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<tr>
<td>Dr. James A. Cardelli</td>
<td>Professor</td>
<td>Regulation of Tumor Invasion and Metastasis; Development of Novel Anti-Cancer Agents</td>
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<td>Dr. Robert P. Chervenak</td>
<td>Professor</td>
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<td>Dr. Lindsey M. Hutt-Fletcher</td>
<td>Professor</td>
<td>Epstein Barr Virus Replication and Pathogenesis</td>
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<td>Dr. Stanimir S. Ivanov</td>
<td>Assistant Professor</td>
<td>Immunity to Vacuolar Bacterial Pathogens</td>
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<td>Dr. Jeremy P. Kamil</td>
<td>Assistant Professor</td>
<td>Human Cytomegalovirus Replication and Cell Tropism</td>
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<tr>
<td>Dr. Seong Kee Kim</td>
<td>Research Assistant Professor</td>
<td>Gene Expression and Regulatory Proteins of Equine Herpesvirus 1 and Varicella Zoster Virus</td>
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<tr>
<td>Dr. David J. McGee</td>
<td>Associate Professor</td>
<td><em>Helicobacter pylori</em> and <em>Arcanobacterium haemolyticum</em> Host-Pathogen Interactions</td>
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<td>Dr. Martin I. Muggeridge</td>
<td>Associate Professor</td>
<td>Molecular Biology of Herpesvirus Glycoproteins and Membrane Fusion</td>
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<td>Dr. Kenneth M. Peterson</td>
<td>Associate Professor</td>
<td>Molecular Pathogenesis and Intestinal Colonization by <em>Vibrio cholerae</em> and Cholera Vaccine Development</td>
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<td>Dr. Martin J. Sapp</td>
<td>Professor</td>
<td>Virus Cell Interactions, Molecular Pathogenesis of Oncogenic Human Papillomaviruses</td>
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<td>Dr. Rona S. Scott</td>
<td>Associate Professor</td>
<td>Mechanisms for Epstein-Barr Virus-Mediated Tumor Progression</td>
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<td>Dr. Ikuo Tsunoda</td>
<td>Associate Professor</td>
<td>Pathogenesis and Immune Responses to Neurotropic and Cardiotropic Viruses</td>
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<tr>
<td>Dr. Matthew D. Woolard</td>
<td>Assistant Professor</td>
<td>Molecular Pathogenesis of <em>Francisella tularensis</em>: Evasion from the Host Immune System</td>
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<tr>
<td>Dr. Andrew D. Yurochko</td>
<td>Professor</td>
<td>Human Cytomegalovirus Host Cell Interactions</td>
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REQUIREMENTS FOR THE PH.D. DEGREE

The regulations and minimal requirements for the Doctor of Philosophy degree are described in the Catalog/Bulletin of LSU Health Sciences Center. In addition, administrative procedures pertaining to registration, preliminary examination, final examination/dissertation defense, grading, and student travel for students at LSUHSC-Shreveport are described in the folder "Policies and Procedures" prepared by the Dean, School of Graduate Studies, LSUHSC-Shreveport. The student should be aware of these policies and procedures as well as the fact that specific forms must be completed to document the student's academic progress.

The student should appreciate that the Catalog/Bulletin describes minimum requirements for the doctoral degree and that additional and more stringent requirements are imposed by the Department of Microbiology and Immunology. This document describes these requirements and regulations.

Residence Requirement:  A minimum of three full years is required for completion of the doctoral degree. In most cases, especially for students who enter the doctoral program without prior graduate level experience and training, a period of four to five years is usually needed for completion of the doctoral degree.

Part-time Students:  The policy of the Department is that no part-time students will be allowed to enroll in the program. Students are expected to devote all their attention and energy to their research and to fulfilling the requirements for the graduate degree. Therefore, it is expected that students will not seek outside jobs and/or part-time employment. With the permission of the Department Head, approval of the Faculty, and consent of the Dean, a student may be allowed to take a leave of absence from the program; in this case, leave time will not apply to the residence requirement.

Evaluation of First Year Students:  The major goals of the first year are for the student to successfully complete all required core courses offered during the year; to develop communication skills by participating in the Departmental journal clubs and seminar program; to gain research experience during the rotations in faculty laboratories in the Fall semester; to select a Faculty Advisor and initiate the doctoral research project; and to establish an Advisory Committee during the Spring semester. The first two semesters of the first year are considered a probationary period in that the achievements and academic record of each first year student are carefully reviewed by the Department graduate faculty in the early summer.

Only students who are in good academic standing, who are demonstrating significant progress toward the doctoral degree, and who are meeting the expectations for a student working toward the highest academic degree will be invited to remain in the doctoral program with the status of "good academic standing and non-probation". A student who fails to meet any of these criteria may be dismissed from the doctoral program or be placed on probationary status, by a decision of the faculty. The policy concerning a student whose overall grade point average or Departmental grade point average is below a B is stated below.

Policy on Academic Performance:  All students are expected to remain in good academic standing, to make progress toward their degree, and to follow the recommendations of their Faculty Advisor and Advisory Committee. Students must maintain an overall Grade Point Average of B in all coursework. In the case of a student whose grade point average is below a B (3.0 on the 4.0 scale), the faculty may decide to dismiss the student from the doctoral program or to place the student on academic probation.
A student who earns a grade of D or F in any one of the Core Courses is subject to dismissal. A student who earns a grade of C in more than 6 credits of the Core Courses is subject to dismissal.

A student who is placed on academic probation may be given one academic year at most to achieve an overall B average. In some cases, the period of academic probation may be less than one year, as decided by the faculty. A student who fails to restore his/her overall Grade Point Average by the end of the academic probation period set by the faculty will be dismissed from the doctoral program. Students who are in good academic standing and who are demonstrating significant progress toward the doctoral degree will receive the highest priority for stipend support and waiver of tuition fees. A student who is on academic probation is not guaranteed stipend support from the Department or the Dean and is not guaranteed waiver of tuition fees.

The student should realize that coursework is not the only measure of academic performance at the graduate level. A student who fails to make progress in meeting other requirements such as acceptable performance on the Qualifying Examination or the Preliminary Examination, preparation of a high quality Research Proposal, and/or fails to demonstrate a proper work ethic and full commitment to his/her career may be placed on academic probation. In these circumstances, the student will be notified in writing of his/her deficiencies and may be dropped from the program if the recommendations of the Advisory Committee and/or Department Head are not met in a timely manner.

**Policy on Stipends:** The Policy of the School of Graduate Studies is that only doctoral students are eligible for stipend support. The awarding of stipend support to doctoral students is an academic decision made by the student’s Advisor in consultation with the Department Head and the student’s Advisory Committee. The Dean of the School of Graduate Studies is informed in advance if a decision is made to withdraw stipend support. Stipend support may be withdrawn if a student is not in good academic standing. To be in good academic standing and merit financial support, a student must complete formal courses with a GPA of 3.0 or higher, demonstrate commitment to their academic responsibilities, make sufficient progress toward the degree, exhibit a proper work ethic, and adhere to a code of ethical behavior expected of biomedical scientists in all research and academic activities as explained in the Student Honor Code.

**Ethical Behavior:** Graduate students are expected to adhere to the spirit and regulations of the Student Honor Code of this Health Sciences Center. A student who cheats on an examination, fabricates experimental findings, and/or misrepresents scientific data is subject to dismissal according to the procedures of the Student Honor Code. Graduate students are expected to meet the high standards expected of biomedical scientists in all aspects of their research, including the humane treatment of laboratory animals, the careful and proper use of isotopes and chemicals, and the vigilant handling and disposal of infectious agents and recombinant DNA molecules. Students are required to follow all institutional policies. Violation of institutional policies that would warrant dismissal of an employee would also support dismissal of a graduate student from the program.

First year graduate students will be expected to enroll in the course Philosophical and Ethical Issues in Science (IDSP #240) in the summer of the first year. This course is taken as Satisfactory/Unsatisfactory and is not included in the calculation of the grade point average (GPA).

**M.S. Program:** The Department of Microbiology and Immunology does not admit students directly into a Master of Science (M.S. degree) in Biomedical Science graduate program. A student in the Ph.D. Program may petition the Department Head and the Faculty for approval to transfer from the Departmental Ph.D. program to the M.S. in Biomedical Science program. Approval is unlikely to be
granted except in very special circumstances. A student in the M.S. program is not eligible for stipend support from the Department but is eligible to receive a tuition waiver.

**Attitude and Responsibility:** Graduate students are expected to behave in a mature and responsible manner and to exhibit a spirit of cooperation with the faculty, their fellow students, and all members of the Department. Students should take an active part in fostering the development of the Department and its graduate program and in promoting the research environment of the University. This participation should be at all levels – from helping to maintain research equipment and facilities, to assisting in the recruitment of new graduate students, to helping fellow students in learning new techniques, etc. The student should realize that his/her professionalism as a developing scientist enhances the reputation of the Department and LSU Health Sciences Center and that the proper environment for productive research is attained by collaborative efforts of all members of the Department, especially its students.
DEGREE IN MICROBIOLOGY AND IMMUNOLOGY

The Doctor of Philosophy degree is the highest academic degree. It is conferred only for work of distinction in which the student displays powers of original scholarship. The major emphasis of the doctoral program in the Department of Microbiology and Immunology is to provide an environment for the student to learn how to think; to ask questions and to answer them in the laboratory and library; to write and communicate; and to develop into a mature, articulate, and competent biomedical scientist.

It is important that the student realizes that he/she must make satisfactory progress in order to remain in the doctoral program. The student's Advisor, the members of his/her Advisory Committee, and the Departmental faculty work in concert with the Department Head to review the qualitative and quantitative academic progress of each student. A student who fails to meet the Departmental guidelines for making continuous progress toward his/her degree or who does not follow the specific recommendations of his/her Advisory Committee is subject to being placed on academic probation or being dismissed from the graduate program.

THE DOCTORAL PROGRAM CONSISTS OF EIGHT MAJOR COMPONENTS
1. COURSEWORK
2. SEMINAR
3. JOURNAL CLUB
4. RESEARCH
5. QUALIFYING AND PRELIMINARY EXAMINATIONS
6. RESEARCH PROPOSAL
7. RESEARCH DISSERTATION
8. OTHER SCHOLARLY ACTIVITIES

1. COURSEWORK FOR THE DOCTORAL DEGREE

Although the emphasis of the doctoral training program is research, every student is expected to have a firm understanding of current concepts, experimental approaches, and recent developments in the fields of microbiology, cell and molecular biology, and molecular genetics. To obtain this foundation, the student is required to complete a core curriculum of graduate courses and to supplement this core with other courses recommended by his/her Advisor and the Advisory Committee.

REQUIRED COURSEWORK FOR THE PH.D. DEGREE

Three types of courses are required:
   A. Formal Core Courses (11 required)
   B. Journal Club Course
   C. Research and Seminar Courses

A. FORMAL CORE COURSES:

IDSP #111: Basic Biochemistry: Molecular and Cellular Biology I (2 cr.)
IDSP #112: Basic Biochemistry: Molecular and Cellular Biology II (2 cr.)
IDSP #113: Genetics (1 cr.)
IDSP #114: Cell Biology (2 cr.)
IDSP #115: Molecular Signaling (1 cr.)
IDSP #116: Methods in Biomedical Sciences: Biochemical and Molecular Methods (1 cr.)
IDSP #117: Methods in Biomedical Sciences: Recombinant DNA and Cell Biology (1 cr.)
IDSP #119: Gene Expression (1 cr.)
MICRO #297: Immunology (3 cr.)
MICRO #276: General and Molecular Virology (3 cr.)
MICRO #291: Bacteriology and Molecular Pathogenesis I (3 cr.)
MICRO #289: Molecular Pathogenesis of Infectious Diseases II (3 cr.)

B. JOURNAL CLUB COURSES

The student must be enrolled and/or participate fully in one journal club course every semester. These courses are not for letter grade and are:

MICRO #292 Discussions in Advanced Virology (1 cr.)
MICRO #293 Discussions in Advanced Immunology (1 cr.)
MICRO #295 Discussions in Bacteriology (1 cr.)
IDSP #203 Discussions in Cancer Biology (1 cr.)

C. RESEARCH AND SEMINAR COURSES

MICRO #298 Seminar (1 cr.; S or U)
MICRO #400 Dissertation Research (1 to 9 cr.; S or U)

Minimal requirement is presentation of two library-type seminars, one each in the first and second years, and a yearly research seminar, one per year starting in the spring semester of the second year.

Credits for Courses: The amount of credit given for the completion of a course is based on the number of lectures or recitations per week for one semester of seventeen weeks. According to the Administrative Procedures of the School of Graduate Studies, effective on July 1, 1987, one credit represents 17 hours of lecture, recitation, and examination. Two hours of laboratory work is considered the equivalent of one lecture or recitation hour. Thus, a 3-credit formal course should consist of at least 51 total contact hours (lectures, discussions, and examinations).

Grades in Coursework: Letter grades (A, B, C, D or F) will be given in most cases in formal courses which are courses that consist of lecture, regularly scheduled class meetings, and written examination(s). Special Topics and Methods courses given for letter grades must be approved in
advance by the Curriculum Committee and the Dean. No letter grade may be given for Research, Seminar, or Journal Club courses; these courses are graded as "Satisfactory” and “Unsatisfactory” which are indicated by "S" and "U", respectively.

2. SEMINAR PROGRAM FOR THE DOCTORAL DEGREE

MICRO #298 Seminar (1 cr.; S or U)

Importance of a Seminar Program: Seminar is the one occasion in which all faculty, postdoctoral researchers, and graduate students meet weekly and discuss research findings and new developments in the disciplines of Microbiology and Immunology. It is an important component of a training program for the predoctoral and postdoctoral student and is a special opportunity for the graduate student to demonstrate his/her abilities as a teacher and biomedical scientist, to learn to present and discuss experimental data, and to think on his/her feet. A good seminar program in which all researchers within the Department participate can be an enjoyable activity that fosters unity and mutual respect among the participants and provides an atmosphere that promotes research and collaborative investigations.

Policy Statement for Graduate Students: Every graduate student in the Department of Microbiology and Immunology is required to present seminars of two types:

A) Library Seminars – Minimum of two required for the doctoral student: In a library seminar, the student discusses the current status of an area of research and then presents the findings from one or two recent papers and demonstrates how these recent data further our understanding of the topic. The student is expected to give a lucid background of the topic, to explain the experimental approaches and research findings of the papers selected for presentation, and to evaluate whether the new data contribute to our understanding of the problem.

Every doctoral student must present at least two library seminars, one in the Spring semester of the first year and one in the Fall semester of the second year. After the second library seminar, the faculty will decide whether the two library seminars were of a quality sufficient to excuse the student from presenting additional library seminars. Only students who present high quality seminars will be excused from the requirement of presenting additional library seminars. The topic of the library seminars should not be directly related to the student's research in order to allow developments in other areas of microbiology to be brought to the attention of the faculty and students and to encourage the student to be knowledgeable in several areas of microbiology and related sciences.

B) Research Report Seminars – One per year, starting in the second year: The student must present at least one seminar each year, starting in the Spring semester of the second year, on his/her research. The first research seminar consists of a statement of the problem, a presentation of data collected to date, and plans for future experiments.

Additional Requirements for Seminar: The topic for presentation and the date of the seminar must be approved by the faculty member in charge of the seminar (Seminar Coordinator). To have a topic approved for a library seminar, the student must submit to the seminar coordinator the topic and references of at least two key papers that will be presented at the seminar. Students who fail to have topics approved by the deadline will be assigned topics by the Faculty Seminar Coordinator.
Ten days prior to the seminar, the student must distribute a one page typed Abstract to all faculty, postdoctoral trainees, and graduate students. The Abstract should give the topic, date, time, faculty sponsor, and room location of the seminar, and list the key paper or papers that will be presented.

The Abstract should be written in a style and manner that will create interest in the seminar and encourage people from other departments to attend.

It is the responsibility of the student to type the Seminar Abstract, to proofread the Abstract, and to arrange for copies to be made. Since copies of the Abstract will be mailed to persons on the Departmental mailing list, the Abstract must be given to the office staff at least ten days in advance of the seminar.

**Format of the Seminar:** A library seminar should be a presentation of research data from one or several selected papers and should be presented in a critical and informative manner such that an audience of peers can appreciate the scientific value of the research. The student is expected to read a considerable body of literature in a critical manner so that he/she has a good understanding of the field, the techniques, and the experimental approaches being used to address the key questions. The seminar, however, is not a lecture or an overview. It is a highly focused presentation of the experimental data and rationale used to further our knowledge about a specific question.

Ideally, the seminar is 45 to 50 minutes in length and starts with an informative introduction of 10 to 15 minutes to present the questions being asked and to provide background information for the audience. The body of the seminar concerns data presentation and explanation of the experimental rationale and the approach being employed to answer the questions being asked. During the seminar, especially in the concluding remarks section, the student is expected to explain how the paper(s) presented fit(s) into the field of study and to discuss the perceived limitations, strong points, and inconsistencies of the papers.

The student is expected to practice his/her seminar presentation and to prepare audio-visual aids to enhance the exchange of information. PowerPoint slides should be prepared with care, but the student should not hesitate to use the blackboard to explain a concept or illustrate a point. The seminar should never be read to the audience. The student is encouraged to practice the seminar with a tape recorder and to have a senior student or his/her Advisor attend a practice presentation. It is the student's responsibility to make certain that audio-visual equipment required for the seminar is in good working order and that the room is ready for the audience.

3. **JOURNAL CLUB PARTICIPATION**

One of the most profitable and enjoyable aspects of the doctoral training program is the student's participation in Journal Club. Although the format varies among the various Journal Clubs, each involves a meeting of the faculty, fellows, and students working in areas of mutual interest to discuss recent developments and techniques that relate to their research interests. Each member takes an equal number of turns in leading a discussion on how the work presented impacts the field. Journal Club presentations are usually informal and promote active and often lively discussion and exchange of ideas. Every graduate student must be a regular member of at least one Journal Club throughout his/her enrollment. Students are encouraged to participate concurrently in several Journal Clubs and to attend meetings of other Journal Clubs when a topic of interest is to be presented.
The Journal Clubs available to students are:

MICRO #292 Discussions in Advanced Virology (1 cr.)
MICRO #293 Discussions in Advanced Immunology (1 cr.)
MICRO #295 Discussions in Bacteriology (1 cr.)
IDSP #203 Discussions in Cancer Biology (1 cr.)

4. RESEARCH

MICROBIOLOGY #298 Seminar (1 cr.; S or U)
MICROBIOLOGY #400 Dissertation Research (1 to 9 cr.; S or U)

Selection of a Major Professor by the New Student: The emphasis of the doctoral program is research, and time available for research will increase each year. New students will be introduced to ongoing research projects during the first two weeks upon entering the Program. After these meetings, each new student will select three faculty members for laboratory rotation. These rotations will allow the student to gain first-hand knowledge of the research in these selected laboratories and serve as a basis to choose his/her Advisor.

The selection of the Advisor will be made after the student completes the laboratory rotations by mid-December of the first year and provides the Department Head with a letter in which his/her choices for the faculty Advisor are listed. Every effort will be made to place the student in the laboratory of his/her choice provided the faculty member is agreeable and space and funds are available to support the student's research.

Faculty members who accept the responsibilities of having graduate students enter their laboratory and serving as the student's Advisor are expected to make every effort to obtain financial support for the student. Faculty members directing research grants will be expected to provide support for students working on the funded project. This support should be at least equal to the present level of Graduate Student Stipends and cannot exceed the maximum stipend level set by the Dean of the School of Graduate Studies and the Department Head. Tuition is waived for students supported by research grant funds or stipends.

The student is expected to devote a considerable amount of time to research at the bench and in the library even though course work is in progress. A key part of developing into a biomedical scientist is for the student to learn how to partition his/her time so that progress can be made in research while courses are in progress.

Formation of the Advisory Committee: The Advisory Committee is established early in the Spring semester of the first year. The Advisory Committee should be faculty members who have expertise in areas of research that may relate to the student's area of experimentation. The major functions of the Advisory Committee are to provide advice and support regarding the student's research and to help monitor the development of the student into a productive, careful, and competent investigator. The Advisory Committee also helps the Advisor evaluate the student's progress in his/her research and advises the student of coursework best suited to his/her needs.
The Advisory Committee must be comprised of at least five faculty members who are eligible to serve according to the rules of the Graduate School. One member is the Advisor, three other members must be on the Department’s Graduate Faculty, and one member must be from outside the Department, usually from the minor area, such as Biochemistry and Molecular Biology. The composition of all Advisory Committees will be discussed and reviewed by the Department Head and the student's Advisor before establishing the Advisory Committee. Before inviting the individual faculty to serve on the Advisory Committee, the Advisor must complete the form "Request to Establish Advisory Committee" and have the Department Head approve the Committee.

**Meeting of the Advisory Committee:** The Advisory Committee is expected to meet periodically, at least once per year, and as needed. The Committee will meet at the following times: a) in the Spring semester of the first year to review the student's planned research and progress in coursework; b) after the first Research Seminar presented in the Spring of the second year (January-March); c) for the selection of the topic of the Qualifying and Preliminary Examination in the Spring of the second year (March-April); d) for the Qualifying Examination and the Preliminary Examination, which should be completed by June 1st; e) for review of the Doctoral Research Proposal in the Fall of the third year; f) at least once in the third and fourth years to review the student's progress; and g) for the doctoral Dissertation Examination. After each meeting, a brief report of the Advisory Committee's recommendations must be prepared in writing by the student’s Advisor and provided to the student, the members of the Advisory Committee, and to the Department Head and placed in the student's file. The progress of each student will be discussed by the entire faculty at Departmental faculty meetings.

**5. QUALIFYING AND PRELIMINARY EXAMINATIONS**

The Qualifying Examination and Preliminary Examinations are intended to assure that the doctoral student who has successfully completed coursework requirements has the ability to identify specific questions that remain unanswered in a research area of microbiology and to develop a written research proposal that describes experimental approaches to answer these questions. Thus, the first part of this double requirement process is the Qualifying Exam that requires that the student write a Research Proposal in NIH R21 application format. In this document, the student proposes a series of experiments that will address two Specific Aims related to a clearly stated hypothesis. The proposal for the Qualifying Examination must be on a topic that is substantially different from the student's dissertation research and the research interests of the student’s Advisor.

**Process and Timing:** The student should be aware that preparing for and completing the Qualifying and Preliminary Exams is a major goal of the second year and should begin to consider two potential topics once formal coursework is completed in late May of the first year. Thus, the student has the long period of June of year #1 to May 1st of year #2 to carefully develop two topics. This process should involve reading the literature in areas of potential topics, consulting with the Faculty Advisor and members of the Advisory Committee, and asking faculty members and fellow students about recent developments in various disciplines of microbiology. Ideally, the student could select the topic of the second Library Seminar (presented in January/February) to be one of the topics proposed for the Qualifying and Preliminary Exam. It is reasonable to expect that a doctoral student could prepare the outline of the two proposed topics in a period of 10 months. The topic of research must be identified and developed by the student and approved by his/her Advisory Committee. The student should feel free to consult with his/her Advisor and the members of the Advisory Committee in this process of developing two topics.
The student must meet with his/her Advisory Committee in the early spring of year #2 to discuss the two possible topics for the Qualifying Examination Proposal so that the topic for the Qualifying Exam is defined by May 1st at the absolute latest. Because May 1st is the final deadline for topic selection, it is strongly recommended that students meet with their committee well before this deadline, in April at the absolute latest, in case revisions are necessary or a new topic must be developed.

Choice of Topic for the Qualifying Examination: The student and the Advisor will discuss the timing of proposing two topics of interest for writing the Qualifying Examination. The proposal is to be written in NIH R21 Research Application format. For each topic, a two-page description of the Significance and Background (one page) and two Specific Aims (one page) should be delivered to the members of the Advisory Committee several days prior to the Advisory Committee meeting. This meeting must be held by May 1st of the second year. At this meeting, the student will give a short, informal presentation of the two topics. The Advisory Committee will decide the topic to be addressed in the Qualifying Examination proposal.

Preparation of the Qualifying Examination Proposal: The student will have a maximum of four weeks to research and prepare a written document in NIH Research Application format on the approved topic. During this interval, the student will not seek any additional help or advice from anyone. It is the student's responsibility to prepare and type the Qualifying Examination proposal. Strict adherence to the NIH R21 Grant Application format should be observed. The Qualifying Examination proposal should be designed as a two-year grant application and must include:

SECTION PAGE LIMITATIONS
1. Cover Page 1
2. Description and Abstract 1
3. Table of Contents 1
4. Detailed Budget and Justification (first year) as needed
5. Budget and Justifications as needed
6. Biographical Sketch 4
7. Resources and Environment as needed
8. Specific Aims (these Aims were approved by the student’s Advisory Committee)
   The two Specific Aims should state concisely the goals of the proposed research and summarize the expected outcome(s) including the impact that the results of the proposed research will exert on the research field(s) involved. It should list succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology.
   9. Research Strategy 6
      The Research Strategy is divided into three sections.
      A. Significance
         - Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses.
         - Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.
         - Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.
      B. Innovation
• Explain how the application challenges and seeks to shift current research or clinical practice paradigms.
• Describe any novel theoretical concepts, approaches or methodologies, instrumentation or interventions to be developed or used, and any advantage over existing methodologies, instrumentation, or interventions.
• Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation, or inventions.

C. Approach
• Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate.
• Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.
• If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high-risk aspects of the proposed work.
• Printout any procedures, situations, or materials that may be hazardous to personnel and precautions to be exercised.

10. Vertebrate Animals

If Vertebrate Animals are involved in the project, address each of the five points below.
1) Provide a detailed description of the proposed use of the animals in the work outlined in the Research Strategy section. Identify the species, strains, ages, sex, and numbers of animals to be used in the proposed work.
2) Justify the use of animals, the choice of species, and the numbers to be used. If animals are in short supply, costly, or to be used in large numbers, provide an additional rationale for their selection and numbers.
3) Provide information on the veterinary care of the animals involved.
4) Describe the procedures for ensuring that discomfort, distress, pain, and injury will be limited to that which is unavoidable in the conduct of scientifically sound research. Describe the use of analgesic, anesthetic, and tranquilizing drugs and/or comfortable restraining devices, where appropriate, to minimize discomfort, distress, pain, and injury.
5) Describe any method of euthanasia to be used and the reasons for its selection. State whether this method is consistent with the recommendations of the American Veterinary Medical Association (AVMA) Guidelines on Euthanasia. If not, include a scientific justification for not following the recommendations.

SECTION PAGE LIMITATIONS
11. Select Agents. See directions in Form SF424
12. Consultants/Collaborators as needed
13. Consortium/Contractual Agreements as needed
14. Literature Cited as needed

The Research Strategy should lucidly explain the hypothesis to be addressed, rationale for the experimentation, experimental approaches, likely data to be obtained, data interpretation, alternate approaches, and potential pitfalls. This section of the proposal is not a “cookbook” of methods. It is
important that the proposal be properly written with respect to content, grammar, style, and the specifications of the NIH Application guidelines.

Meeting of the Advisory Committee for Decision on the Qualifying Examination and the Preliminary Examination: The Preliminary Examination is expected to be held within two weeks of submission of the Qualifying Examination Proposal. It is the responsibility of the student to consult with members of his/her Advisory Committee and to schedule the Preliminary Examination at a time agreeable to all. At this meeting, the Advisory Committee should discuss and decide by vote whether the Qualifying Examination Proposal is of a quality that merits its approval and that the student has passed the Qualifying Examination. If the majority of the Advisory Committee decides that the proposal is of such poor quality that the student has failed the Qualifying Examination, then several options may be recommended by the Advisory Committee and include (but are not limited to): partial or total rewrite of the proposal; choice of another topic and probationary period; recommendation for dismissal from the Ph.D. program. A recommendation of dismissal will be presented to the Department Head and the entire full-time Graduate Faculty of the Department, who will be responsible for determining the final status of the student.

Evaluation of the Qualifying Examination Proposal: The student’s Qualifying Examination Proposal may be given a score using the NIH Scoring System so that the student can appreciate how NIH Study Sections evaluate research grants and how the student’s proposal would be judged in this scoring system. The NIH scoring system uses a 9-point scale. A score of 1 indicates an exceptionally strong application with essentially no weaknesses. A score of 9 indicates an application that has serious and substantive weaknesses with very few strengths; 5 is considered an average score.

The NIH Study Section assigns an overall impact/priority score. The assigned reviewers score the five individual criteria of Significance, Investigator(s), Innovation, Approach, and Environment. To determine the impact/priority score rating, the strengths and weaknesses across all of the review criteria are considered. NIH reviewers consider not only the relative number of strengths and weaknesses noted, but also the importance of these strengths and weaknesses to the criteria or to the overall impact when determining a score. For example, a major strength may outweigh many minor and correctable weaknesses. Scores of 1 or 9 are used less frequently than the other scores.

The impact/priority score should reflect the reviewer’s overall evaluation, not a numerical average of individual criterion scores. An application does not need to be strong in all categories to be judged likely to have major impact. For example, a project that by its nature is not innovative may be essential to advance a field. Scores of the five criteria (Significance, Investigator, Innovation, Approach, and Environment) are intended to provide additional information on how each assigned reviewer weighed that particular section so that the reader has a better idea of strengths and weaknesses that need improvement. The impact/priority score for an application is based on each individual reviewer’s assessment based on the five scored criteria plus additional criteria regarding the protection and inclusion of human subjects; vertebrate animal care and welfare; biohazards, and criteria specific to the application. All scores are averaged and the result multiplied by 10 to determine the final impact/priority score. Thus, the range of the final application scores is from 10 to 90.

<table>
<thead>
<tr>
<th>IMPACT</th>
<th>SCORE</th>
<th>DESCRIPTOR</th>
<th>GUIDANCE ON STRENGTHS /WEAKNESSES</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>1</td>
<td>Exceptional</td>
<td>Exceptionally strong with essentially no weaknesses</td>
</tr>
<tr>
<td>High</td>
<td>2</td>
<td>Outstanding</td>
<td>Extremely strong with negligible weaknesses</td>
</tr>
<tr>
<td>Grade</td>
<td>Score</td>
<td>Description</td>
<td>Examples</td>
</tr>
<tr>
<td>-------</td>
<td>-------</td>
<td>----------------------------------</td>
<td>--------------------------------------------------------------------------</td>
</tr>
<tr>
<td>High</td>
<td>3</td>
<td>Excellent</td>
<td>Strong but with only some minor weaknesses</td>
</tr>
<tr>
<td>Medium</td>
<td>4</td>
<td>Very Good</td>
<td>Strong but with numerous minor weaknesses</td>
</tr>
<tr>
<td>Medium</td>
<td>5</td>
<td>Good</td>
<td>Strong but with at least one moderate weakness</td>
</tr>
<tr>
<td>Medium</td>
<td>6</td>
<td>Satisfactory</td>
<td>Some strengths but also some moderate weaknesses</td>
</tr>
<tr>
<td>Low</td>
<td>7</td>
<td>Fair</td>
<td>Some strengths but with at least one major weakness</td>
</tr>
<tr>
<td>Low</td>
<td>8</td>
<td>Marginal</td>
<td>A few strengths and a few major weaknesses</td>
</tr>
<tr>
<td>Low</td>
<td>9</td>
<td>Poor</td>
<td>Very few strengths and numerous major weaknesses</td>
</tr>
</tbody>
</table>

MINOR WEAKNESS: An easily addressable weakness that does not substantially lessen impact.
MODERATE WEAKNESS: A weakness that lessens impact.
MAJOR WEAKNESS: A weakness that severely limits impact.

The Preliminary Examination: If the Advisory Committee decides that the student has passed the Qualifying Examination, the Preliminary Examination will begin. The Preliminary Examination consists of an Oral Examination in which the student presents and defends the written proposal and answers questions on any of a variety of topics posed by members of his/her Advisory Committee. Although this Preliminary Examination will focus on the proposal, the student is expected to demonstrate a thorough knowledge of background information and be capable of applying basic information from his/her coursework and reading of the literature to answer questions on a variety of topics. The student and Advisor should note that an official form must be completed TWO WEEKS in advance of the Preliminary Examination and submitted to the Office of the Graduate School.

Recommendation of the Advisory Committee: After the Preliminary Examination, the Advisory Committee must decide whether the student has satisfactorily completed the Preliminary Examination. The recommendations available to the Committee include: Pass; Remediation; or Fail.

*If the Advisory Committee votes that the student has passed the Preliminary Examination, then the student should begin to address the requirement of the Doctoral Research Proposal.

*If the Advisory Committee deems the oral presentation inadequate, then the Advisory Committee may recommend measures for remediation.

*Immediately after the Preliminary Examination, the Faculty Advisor must complete and submit to the Department Head the form "Report of the Preliminary Examination.” The Department Head will submit this Report to the Dean. After approval by the Dean, copies of the Report will be distributed to members of the Advisory Committee, to the student, and placed in the student's file.

Doctoral Candidacy: When the student has been judged to pass the Preliminary Examination, the Advisor and members of the Advisory Committee shall recommend that the student be admitted to candidacy for the doctoral degree.

An official form must be signed by all members of the Advisory Committee and the Department Head, and submitted to the Office of the Graduate School.

6. **DOCTORAL RESEARCH PROPOSAL**
A major component involved in the quality control of research and of a training program designed to teach students about the real world of academic research is the preparation, presentation, and peer review of a research proposal describing the student's project. This proposal is written in NIH Grant Application format by the student and includes Background information from the literature, Specific Aims, Rationale, Preliminary Data, and Methods to be used to answer the questions being asked. The purpose of the research proposal is for the student to define his/her doctoral research project, which will be the subject of the doctoral dissertation. The choice of the topic should result from experiments conducted by the student during his/her first two years and from discussions with the student's Advisor and Advisory Committee. The Research Proposal must be submitted to the student’s Advisory Committee and Outside Reviewer TWO WEEKS in advance of the visit of his/her Outside Reviewer.

The research proposal should be written clearly and concisely. The student should realize that the Experimental Design/Methods section is not a "cookbook" of protocols, but is a section that describes the hypothesis to be addressed, experiments to test the hypothesis, the approaches to be taken and the rationale for each approach, an explanation as to how the findings obtained will or will not answer the specific aims being addressed, a statement of the pitfalls and limitations of the approaches, and a discussion of alternative experiments to answer the questions being asked.

**Time Frame:** The student must begin the preparation of the written proposal as soon as possible after completing the Preliminary Examination and becoming a Candidate for the doctoral degree.

**Format of the Proposal:** The format of the research proposal should be consistent with the guidelines used for NIH R01 Research Grant Applications, as follows:
The format of the Doctoral Research Proposal is the same as that described for the Qualifying Examination Proposal except that Preliminary Studies should be integrated in the Approach section of the Research Strategy. The page limitation of the Research Strategy is 12 pages.

**Role of Advisory Committee:** Since this proposal represents a research plan for the student's dissertation research project, the major role of the student's Advisory Committee is to offer suggestions and comments on the proposed research, to insure the propriety of the project, and to make certain that the student is prepared to undertake the doctoral research.

The Advisory Committee will be assisted by an Outside Reviewer who has expertise in the field of the proposed research. The choice of the Outside Reviewer will be the responsibility of the Advisor, but the selection must be approved by the Advisory Committee and Department Head.

The presence of the Outside Reviewer enhances the quality of the review process and reinforces for the benefit of the student and the faculty that the student's research is state of the art, scientifically valid, and truly worthy of the doctoral degree. It should be emphasized that inclusion of the Outside Reviewer is intended to be a positive feature of this review process. Often, the Outside Reviewer may make excellent suggestions to improve the student's research project, inform the student of important, but unpublished, findings relevant to his/her research, and help the student secure a postdoctoral position in a leading laboratory.

**Presentation of Proposal as a Public Seminar:** The student will present the proposal at a public seminar. After the seminar, the student will meet with his/her Advisory Committee and the Outside Reviewer to review and discuss the proposal.
**Recommendation of the Advisory Committee:** The Committee may decide: 1) to approve the proposal as written; 2) to require modification(s) of the proposal in a manner consistent with good science; 3) to require the student to make significant changes. If significant changes are required, the Committee may elect to have the proposal rewritten and returned to the Committee and Outside Reviewer for approval.

The proposal will be approved as written (and modified) if there is no more than one negative vote. The Outside Reviewer is expected to participate actively in the examination of the student and in the critique of the Research Proposal. Approval of the research proposal by the Advisory Committee assures the student that the Committee feels that satisfactory completion of this project by the student should constitute an acceptable dissertation research project. The student is then expected to devote the overwhelming portion of his/her time to the doctoral research project. The progress of his/her research is monitored by the Advisor and by the periodic meetings of the Advisory Committee.

**7. RESEARCH DISSERTATION**

The dissertation research must be a contribution to the field and is expected to generate original findings that address a fundamental question. It is expected that the major substance of the study will be published in a reputable journal and that the student will present his/her research findings at local, regional, national, or international meetings of scientific societies in the student's field.

**Preparation and Defense of the Doctoral Dissertation**

The dissertation is prepared by the student with the guidance of his/her Advisor and Advisory Committee. Upon completion of the dissertation, the student should provide copies of the dissertation to all members of his/her Advisory Committee. After an appropriate period of approximately 7 days, the student's Advisor will contact each member of the Advisory Committee and determine whether the member feels the dissertation is completed to a degree that will allow scheduling of the Dissertation Defense and Final Examination. If two or more members of the Advisory Committee feel the dissertation is incomplete and/or of a quality unsuitable to schedule the Defense, the Committee will meet and make specific recommendations necessary to improve the dissertation prior to scheduling the Dissertation Defense and Final Examination.

In order to schedule the Dissertation Defense and Final Examination, the student's Advisor must complete the form "Request for Dissertation/Thesis Defense and Final Examination" and submit this form and a copy of the Dissertation Abstract to the Department Head, who will review the information, sign the form and submit the documents to the Dean. The approved form and Dissertation Abstract must be received by the Dean **two weeks prior to the date of the Defense and Final Examination**.

The Dissertation Defense and Final Examination will focus on the dissertation research and the dissertation itself. The student is expected to answer questions about the work, defend the validity of the conclusions, discuss suggestions for revisions to improve clarity, etc. At the discretion of the Advisory Committee, the Defense and Final Examination may include questions from the major or minor fields in general, but this is not the usual situation.
After the student has answered questions concerning the dissertation, the Committee will discuss the dissertation and revisions that may be necessary and vote whether the student has passed the Final Examination. Voting to accept the dissertation (with all recommended revisions) will be by ballot with no more than one negative vote permitted. If the dissertation is not acceptable and/or the student is judged to have failed the examination, the Advisory Committee is expected to inform the student in writing of the reasons for the failure. A copy of this letter is provided to the Head of the Department and to the Dean of the Graduate School. The Advisory Committee, the Department Head, and the full-time graduate faculty members of the Department will meet to discuss the final disposition of any student who fails the Dissertation Defense and Final Examination.

The Advisory Committee may vote to re-schedule a second Dissertation Defense/Final Examination if major revisions and/or additional experimentation are required. In this case, the student is to be informed in writing of the deficiencies and of the work that must be accomplished before a second Defense and Final Examination may be scheduled. This information must be included in the letter given to the Head of the Department and to the Dean.

**Final Research Seminar and Certification:** Once the student has passed the Dissertation Defense/Final Examination and the dissertation has been accepted by the Advisory Committee, the student is required to present a final research seminar open to all faculty, students, and staff. In some cases, the student may be allowed to present this seminar before the Dissertation Defense, but only with the permission of the Advisory Committee and the Department Head. The purpose of this seminar is to allow the student to present the overall view of his/her doctoral research and to demonstrate to new and intermediate level graduate students as well as to other members of the Health Sciences Center the high quality of research expected for the doctoral degree. It is expected that this Final Research Seminar will be a joyous occasion and often a farewell for the graduate student who will be departing to continue his/her research training as a postdoctoral fellow. When the student has passed the Dissertation Defense/Final Examination and presented the Final Research Seminar, he/she will be certified to the Graduate Faculty and Chancellor as having met all requirements for the degree of Doctor of Philosophy in Microbiology and Immunology. The student's Advisor must complete the form "Dissertation/Thesis Defense-Final Examination Report" and have the form signed by each member of the Examining Committee and the Department Head. The Head will forward this form to the Dean.

**8. OTHER SCHOLARLY ACTIVITIES**

In addition to requirements concerning Research, Coursework, and Seminar, every graduate student is expected to participate in other scholarly activities. These activities vary from individual to individual, but students are expected to develop good reading habits so that they can keep abreast of major developments in their field and in related biomedical sciences; to present their research findings at meetings of professional societies in their field; to show leadership and maturity by assisting other graduate students and staff in research techniques and the use and maintenance of instrumentation; to help in the recruitment of graduate students into the program; to assist in teaching if invited; and to take an active role in maintaining the research environment of the Department and the University.

It is expected that every doctoral candidate will publish at least one first-author paper on the findings from his/her dissertation research in a national/international journal. Students are expected to attend all guest seminars and guest lectures in graduate courses by Visiting Faculty.
Teaching is an important aspect of the doctoral training program, and all students are required to participate in teaching. This may take the form of presenting information in a journal club format, participating in the training of new students or Research Associates in laboratory procedures, speaking to undergraduate and/or grammar school students at science fairs, etc.

DESCRIPTION OF GRADUATE COURSES

ELEVEN FORMAL COURSES REQUIRED FOR THE PH.D.

I. REQUIRED IDSP (INTERDISCIPLINARY) COURSES
IDSP #111, #112, #113, #114, #115, #116, #117, and #119 are required.

II. REQUIRED FORMAL COURSES OFFERED BY THE DEPARTMENT

MICRO #276: GENERAL AND MOLECULAR VIROLOGY (3 credits)
Description: An introduction to the structure, replication, biology, and molecular biology of animal viruses. Emphasis is also given to virus-cell interactions at the molecular level, including the immune response to viral infections, and current research on mechanisms of viral replication and its effect on regulatory mechanisms of host cells. Lectures, discussions, and seminars. Course director: Dr. Martin Sapp

MICRO #289: MOLECULAR PATHOGENESIS OF INFECTIOUS DISEASES II (3 credits)
Description: An advanced study of the mechanisms whereby parasites, viruses, and bacteria cause infectious disease. The interactions between these pathogens and the host will be examined in detail utilizing various animal and human models. Pathogenesis will be presented ecologically following the events of the pathogen's entry into the host, its encounters with the host, its encounters with the host's defense mechanisms, strategies employed by the parasite and virus to counteract host defenses, to spread throughout the host, mechanisms of cell and tissue damage, etc. Emphasis will be placed on the molecular aspects of virulence factors and host defenses. Course director: Dr. Jason Bodily

MICRO #291: BACTERIOLOGY AND MOLECULAR PATHOGENESIS OF INFECTIOUS DISEASE I (3 credits)
Description: An advanced course of lectures, discussions, and student presentations in the areas of structure, function, and physiology of bacteria. In the first portion of the course, emphasis will be placed on bacterial structure and the functions of these structures, bacterial physiology, and the nature of antibiotics and their mechanisms of action. In the second portion, the mechanisms employed by bacteria to cause disease will be stressed, and lectures will cover the major types of bacterial infectious diseases. Lastly, basic information on the properties of fungi will be covered, and lectures will address topics in medical mycology. Course director: Dr. Stanimir Ivanov

MICRO #297: IMMUNOLOGY (3 credits)
Description: An advanced course, employing both lecture and discussion formats, that is designed to cover many of the important aspects of modern cellular and molecular immunology. Strong emphasis is placed on understanding the myriad of molecular interactions involved in the development, function, and regulation of the cells responsible for immune phenomena. By the supplemental reading of crucial
journal and review articles, students are encouraged to examine and interpret recent experimental findings. Course director: Dr. Robert Chervenak

III. JOURNAL CLUB COURSES
First year students rotate through Journal Clubs during the first semester. Every student must become a member of a Journal Club beginning in January of the first year.

MICRO #292: DISCUSSIONS IN ADVANCED VIROLOGY AND MOLECULAR BIOLOGY
Description: A journal club format is used for students to present and discuss developing concepts and new information about techniques and research findings from the disciplines of molecular virology and cellular-molecular biology. Emphasis is given to teaching the student to develop the skills required for a critical assessment of the scientific literature and for understanding how new information can be applied to research problems. Course director: Dr. Dennis O’Callaghan

MICRO #293: DISCUSSIONS IN ADVANCED IMMUNOLOGY
Description: A journal club/research in progress format is used for the discussion of new findings in immunology and related fields. Experimental observations published in the literature as well as those from the student's own research activities are explored. Emphasis is placed on the development of communication skills as well as the ability to critically evaluate experimental data and improve experimental design. Course director: Dr. Robert Chervenak

MICRO #295: DISCUSSIONS IN BACTERIOLOGY
Description: A journal club/research-in-progress format is used for discussion of recently published and unpublished research in the field of bacteriology. Emphasis is placed on critical evaluation of experimental design, data and conclusions as well as on the development of communication skills and knowledge of new developments in prokaryotic biology. Course director: Dr. David McGee

IDSP #203: DISCUSSIONS IN CANCER BIOLOGY
Description: The Cancer Biology Journal Club is designed to explore the latest published research in a variety of cancer-related topics including tumor invasion and metastasis. Students will discuss published findings with the group and propose future directions the research might take. The primary goals of the journal club are to enhance information learned in the Cancer Courses and to improve the research abilities of the participants. Course director: Dr. James Cardelli

IV. REQUIRED RESEARCH, SEMINAR, and BIOETHICS COURSES (IDSP #240)

MICRO #298: SEMINAR IN MICROBIOLOGY
Description: The student prepares and presents selected findings from either the current literature or his/her research in a 45-minute public seminar. The seminar consists of a brief and informative introduction, explanation of the experimental procedures and strategies employed, presentation and critical assessment of the findings, and a questions/discussion period. Prior to the seminar, the student must prepare and circulate a written abstract announcing the seminar and summarizing the key findings to be presented. One seminar each year must concern the research in progress by the student. The student is provided a written critique of the seminar by each faculty member and discusses these
critiques with the faculty member responsible for the course. Course directors: Fall course, Dr. Martin Sapp; Spring course, Dr. Michelle Arnold

**MICRO #400: DISSERTATION RESEARCH**  
*Description:* Research for the doctoral degree is conducted under the supervision of the student's Advisor in concert with the members of the student’s Advisory Committee. Registration is by consent of the Head of the Department. The amount of credit is to be stated at the time of registration.

**IDSP #240: PHILOSOPHICAL AND ETHICAL ISSUES IN SCIENCE**  
*Description:* The objective of this course is to provide an understanding of the underlying philosophy in scientific endeavors and the ethical issues that face scientists. The course will involve detailed discussions about the history of scientific thought, the scientific method, experimentation and data collection and current ethical issues. Weekly sessions will include lectures and discussions by faculty, students and guest speakers. Course director: Dr. Sandra Roerig

**V. OPTIONAL GRANT WRITING COURSE**

**IDSP #235B: GRANT WRITING**  
*Description:* The fundamental principles of grant writing and review are covered, with an emphasis on NIH-type research grants. The components of an NIH-type grant applications and the type of information that should be included in the specific aims, research strategy, impact, budget, and form pages are explained in detail, and strategies for writing, organization, and formatting of proposals are provided. This course is recommended to help students prepare for the Qualifying Exam Proposal and the Research Proposal. Course director: Dr. Andrew Yurochko

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**DEPARTMENT OF MOLECULAR AND CELLULAR PHYSIOLOGY**  
www.shreveportphysiology.com

D. Neil Granger, Ph.D., Boyd Professor and Head  
318-675-6011 (phone)  
dgrang@lsuhsc.edu

Graduate Program in Molecular and Cellular Physiology
Physiology is the study of how biological systems perform their functions to maintain the steady-state internal environment of living organisms. As physiologists, we can study these processes at the genetic, cellular, organ system or whole-animal level. Our departmental name reflects the increasing application of molecular biology techniques in the understanding of physiological function. Understanding the basic concepts of physiological control of organ systems in the human body is key to identifying regulatory processes during organ dysfunction and disease states which, in turn, may elucidate a novel approach in therapeutic intervention.

The Department of Molecular and Cellular Physiology recruits highly motivated individuals from biomedical undergraduate backgrounds who wish to pursue a rewarding career in biomedical research. Our Ph.D. program provides individualized training for each student to successfully fulfill the requirements leading to the attainment of a Ph.D. degree. This will provide highly skilled graduates with the investigative tools necessary for an intellectually challenging and rewarding career in an ever-evolving field at academic, industrial or government institutes. The graduate program consists of lecture courses, seminar presentations and independent research. Our program emphasizes the need for a strong, knowledgeable background of reviewed literature, a well-planned experimental approach to problem-solving and skilled interpretation of results. In addition, students will be guided in the development of excellent written and oral communication skills.

During the first year of study each student is required to complete a series of core courses that provide a broad perspective in the field of Physiology. These core courses include: Basic Biochemistry and the Graduate Core Curriculum in physiology. In addition, students are required to take advanced courses in during the second year of study. At the end of the second semester of the first year, each student must pass the Preliminary Examination that consists of an essay-type written examination followed by an oral qualifying examination. During the first year of study the student also rotates through four research laboratories to become familiar with faculty research interests and to assist in the selection of their research mentor. Upon successful completion of the qualifying examination and the selection of a research mentor, the student progresses onto a program of original and independent research under the guidance of their mentor. Students must write a grant proposal and defend their research progress to their advisory committees in regularly scheduled meetings throughout the duration of their research study. Students are expected to publish at least two peer-reviewed papers from their dissertation work. One published manuscript is required for completion of the Ph.D. degree.

Following the first year of study, PhD candidates will also have the opportunity to participate in teaching students in the School of Allied Health Professions. This training is under the guidance of the student’s mentor and would constitute no more than 6 hours of lecturing. During the PhD program students will be encouraged to participate in the presentation of their research results at National Scientific Meetings. Not only does this provide an ideal platform for students to get feedback on their own data, this also provides the opportunity to meet peers and be exposed to current developments within their own area of research.

Students are provided with desk space in the graduate student room during their first year prior to selection of their mentor. Students are encouraged to interact with faculty members upon joining the department and attend departmental social events.

Admissions and Regulations
Requirements for Admission
Students who wish to enter the graduate program in the Department of Molecular and Cellular Physiology are expected to meet the following requirements:

1) Baccalaureate degree from a college or university approved by a regional accrediting agency.
2) An undergraduate grade point average of 3.0 on a 4 point scale and a 3.0 grade point average for any graduate coursework.
3) Applicants should have completed at least one year of each of the following: Inorganic Chemistry, Organic Chemistry, Physics and Biological Science.
4) Satisfactory score on the Graduate Record Exam; a minimum combined verbal and quantitative score of 300 (on the scale introduced in 2011) is required to be considered for admission.

All international students must present one of the following minimum scores on the Test of English as a Foreign Language (TOEFL) examination: Paper Based – 550; Internet Based – 80; Computer Based - 213. Alternatively, a score of at least a 6.5 on the International English Language Testing Service exam is acceptable.

The above are minimal requirements, and the Department usually accepts only students whose achievements exceed these minimal requirements. In addition, prospective students are normally invited to interview with the departmental faculty prior to acceptance into the program.

Types of Admission

Admission of a student can be one of three types:

Unconditional Admission - An acceptable candidate who meets all of the admission requirements is given this kind of admission.

Special Student Status - A candidate who is judged by the Department Head, Faculty and by the Dean of the Graduate School to show promise for successful graduate work, but has either been absent from coursework for greater than 2 years or does not fully meet the requirements 2-4 stated above for entry into the Physiology program, that student may be accepted into the program, but will be required to take PHYSIO 201 (Human Physiology) in the summer prior to stating the first year of the program. This will provide a foundation for the course work that the student is required to take in the first year of graduate studies. When the student has successfully completed PHYSIO 201, he/she may be eligible for Unconditional Admission into the Ph.D. program.

Provisional Admission - A candidate who appears to be admissible, but who is unable, for good reason, to supply the required credentials prior to the stated deadline may be given provisional admission. In such cases, complete credentials must be received not later than sixty days after the first day of classes.

Admission Procedures
The applicant may apply online at http://www.shreveportphysiology.com/preliminary.html; or may obtain application forms from the Office of Graduate Studies, LSU Health Sciences Center at Shreveport, P.O. Box 33932, Shreveport, LA 71130. The completed application, together with one copy of each official transcript (from the Registrar's office) of each college or university attended by the applicant must be sent directly to the Office of Graduate Studies. Letters of recommendation from
two former professors are required. The results of the Graduate Record Examination must be forwarded directly to the School of Graduate Studies by the Educational Testing Service. Copies of the above information including transcripts and GRE scores will be sent to the Department by the Office of Graduate Studies.

Applicants to the PhD. program in Physiology will be reviewed by the Physiology Faculty. Promising candidates will be contacted by Director of Graduate Studies in the Department of Molecular and Cellular Physiology and interviewed by Skype initially. Following the interview, it is possible that students will also be required to visit the department to interview with the faculty. A final decision will be made and successful applicants will be notified by mail by the Department and the School of Graduate Studies. Separate acceptance letters should be sent to each department respectively. Applicants who have questions concerning the application and review process should address the inquiries to Dr. Lynn Harrison, Director of Graduate Studies, Department of Molecular and Cellular Physiology, LSU Health Sciences Center, 1501 Kings Highway, Shreveport, LA 71130; Tel: (318) 675-4213, e-mail: lclary@lsuhsc.edu

**Grade Requirements**

To receive a graduate degree, a student must have at least a "B" average on all work taken as a graduate student. A student will be dropped from the rolls of the School of Graduate Studies if the student's cumulative average is below a "B" for three (3) consecutive semesters. Credits received in thesis or dissertation research are not used in computing the grade point average. A Summer term is counted as a semester. Students in serious scholastic difficulties may be dropped from the rolls at the end of any semester if the Department and Dean feel that the student is not qualified to continue.

For more comprehensive information consult the pertinent section of the LSUHSC School of Graduate Studies website or elsewhere in this handbook.
Ph.D. Program

Information and Requirements

The Doctor of Philosophy degree is the highest academic degree offered by the University. It is conferred only for work of distinction in which the student displays powers of original scholarship. The major emphasis of the doctoral program in the Department of Molecular and Cellular Physiology will be to provide an environment for the student to learn how to think, how to ask questions and to answer them in the laboratory and the library, how to write and communicate and to develop into a mature, articulate and competent biomedical scientist.

The Doctoral program consists of seven (7) major components

- Formal Coursework
- Qualifying Examination
- Research
- Grant writing
- Seminar
- Other Scholarly Activities
- Teaching

Formal Coursework

The first emphasis of the doctoral training program will be formal coursework. Every student is expected to have knowledge in and a firm understanding of, current concepts, experimental approaches, and recent developments in the major field of Physiology. To obtain this foundation, the student is required to complete a core curriculum of graduate courses and to supplement this core with other courses recommended by his/her major professor and/or the Advisory Committee.

Graduate Student Curriculum

YEAR 1

**Fall**
IDSP 111-112  Basic Biochemistry, Molecular and Cellular Biology I, II (2 cr ea = 4 cr)
IDSP 211  Foundations of Biomedical Sciences, General Principles (1 cr)
IDSP 216  Foundations of Biomedical Sciences- Gastrointestinal System (1 cr)
IDSP 212  Foundations of Biomedical Sciences - Cardiovascular System (2 cr)
PHYSIO 270  Special Topics - Journal Club (1 cr)
PHYSIO 211  Skills in Investigative Research (2 cr)
PHYSIO 202  Laboratory Rotations (3 cr)

**Spring**
IDSP 113  Genetics (1 cr)
IDSP 114  Cell Biology (2 cr)
IDSP 115  Molecular Signaling (1 cr)
IDSP 119  Gene Expression (1 cr)
IDSP 213  Foundations of Biomedical Sciences - Renal System (1 cr)
IDSP 214  Foundations of Biomedical Sciences - Respiratory System (1 cr)
IDSP 217  Foundations of Biomedical Sciences - Endocrine System (1 cr)
PHYSIO 202  Laboratory Rotations (3 cr)

Summer
IDSP 240  Philosophical and Ethical Issues in Science (1 cr)
PHYSIO 203  Physiology Research (1-9 cr)

Department of Physiology Qualifying Examinations (Written and Oral)

YEAR 2

Fall
PHYS 210  Pathophysiology (3 cr)
IDSP 235B  Grant Writing (S/U 1 cr)
PHYSIO 270  Special Topics - Journal Club (1 cr)
PHYSIO 400  Dissertation Research (1-9 cr)

Spring
IDSP 219  Inflammation, Immunity and Infection (1 cr) Optional Course
IDSP 226  Basic Biostatistics (1 cr)
IDSP 227  Advanced Biostatistics (1 cr)
PHYSIO 270  Special Topics - Journal Club (1 cr)
PHYSIO 278  Advanced Cardiovascular Physiology (5 cr)
PHYSIO 400  Dissertation Research (1-9 cr)
  Grant to be written and submitted for pre-doctoral fellowship

Summer
Dissertation Research and Allied Health teaching
Grant proposal to be examined by committee if student is not successful in obtaining a pre-doctoral fellowship.

YEAR 3-4

Dissertation Research

YEAR 5

Dissertation Research
Field Exam (Test on Dissertation Literature Review)
Final Dissertation Defense/ Department Seminar/ Graduation

*NOTE: Literature Review and Ph.D. Dissertation must be provided to the committee members at least four weeks in advance of these exams.

DESCRIPTION OF COURSES
**PHYSIO 201** Human Physiology. This is a foundation course in Physiology and does not replace any required Foundation or Physiology course. Students will be required to take this course in the summer prior to entry into the Ph.D. program if the student is accepted into the Physiology graduate program under the terms stated above for “Probationary Admission”. Course director: Dr. Christopher Pattillo

**PHYSIO 202.** Laboratory Rotations. Hours and credits by arrangement.

**PHYSIO 203.** Physiology Research. Hours and credits by arrangement.

**PHYSIO 210.** Pathophysiology. (3 credits, letter grade) To teach Physiology graduate students the general paradigms and fundamental concepts related to changes in physiological processes that underlie different disease states. Course director: Dr. Steven Alexander

**PHYSIO 211.** Skills in Investigative Research. (2 credits, letter grade) This course will provide a practical introduction to first year graduate students to the basic oral and written skills that are fundamental in investigative research. Students will be instructed in the theory and practice of how to write a scientific paper, to present a scientific talk, to critique and present research papers, and grantsmanship. Student participation is a major emphasis. Course director: Dr. Lynn Harrison

**PHYSIO 270.** Special Topics - Journal Club. (1 credit, S/U) Course covers journal reviews and articles on diverse topics in molecular physiology, including inflammation, microcirculation, imaging, genomics and therapeutics approaches. Course directors: Faculty rotation

**PHYSIO 278.** Advanced Cardiovascular Physiology. (5 credits, letter grade) A comprehensive summary of physiology of the peripheral circulation. The major emphasis is on the functions of various components of the microcirculation including a consideration of the biophysics of vascular smooth muscle contraction and its relation to the regulation of blood flow distribution within and among organs, substrate transport across the microcirculation, the endothelial cell as a metabolic barrier to substrate transport, regulation of blood flow in the various organs, and angiogenesis. Course director: Dr. Norman Harris

**PHYSIO 300.** Thesis Research. (1-6 credits, S/U) Amount of credit to be stated at time of registration.

**PHYSIO 400.** Dissertation Research. (1-9 credits, S/U) Amount of credit to be stated at time of registration.

**Qualifying Process- Preliminary Examination**

A student must obtain at least an average grade of "B" in the Foundations of Biomedical Sciences courses to qualify for the Ph.D. degree. In addition, the student must demonstrate that he/she is competent in a broad segment of Physiology. Although a student may be working in one area of Physiology such as Cell, Cardiovascular or Renal Physiology, he/she is expected to have an understanding of the concepts, experimental approaches, and major developments in the major field of physiology covered in the core curriculum of the Ph.D. program.
To demonstrate this competence, the student must pass the Preliminary (or Qualifying) Examination that is composed of two (2) parts: a) Written, and b) Oral. This Preliminary Examination will usually be administered sometime during the summer months prior to the start of the second academic year.

1. Written Examination

The Written Examination is divided into six (6) equal sections:

1. Cell Physiology
2. Cardiovascular Physiology
3. Renal Physiology
4. Respiratory Physiology
5. Gastrointestinal Physiology
6. Endocrine Physiology

A student who receives a grade of "A" or "B" in all six sections is considered to have passed the written section of the Preliminary Examination. In addition, a student may receive a grade lower than "B" in one of the six sections and still pass the written portion of the Preliminary Examination.

A student who receives a grade below "B" in only two sections is considered to have failed the Written Examination and will not be allowed to take the Oral Examination at this stage. A remedial examination covering these two sections will be scheduled within 2 weeks after the first Written Examination. A student must receive a passing grade (ie 80% or better) on both sections to pass the remedial exam. If the student passes the remedial examination, he/she will then be allowed to take the Oral Examination. If the student fails the remedial exam, he/she is subject to dismissal from the Ph.D. Program. If a student fails three of the six sections on the written portion of the first Preliminary Examination, he/she will be dismissed from the Ph.D. Program.

2. Oral Examination

Once a student has successfully completed the Written Examination he/she becomes eligible to take the Oral Examination. The Oral Examination will cover all of the six (6) sections of Physiology listed above. In the case of a student who fails one or two sections of the Written Examination, the student will be examined in depth on the deficient core areas during the Oral Examination. Students who have remediated the written portion of the Preliminary Examination will only be allowed one Oral Examination. If the student fails the Oral portion of the Preliminary Examination, he/she will be dismissed. Students who pass the Written Examination but fail the Oral Examination will be re-examined only by Oral Examination. This second examination must be administered within one (1) week of the original Oral Examination. Failure to pass this remedial exam will result in dismissal of the student from the program.

Students who pass both the Written and Oral sections of the Preliminary Examination are nominated to become a "Doctoral Candidate".

3. Preparation for the Preliminary Examination

Preparation for the Preliminary Examination is a constant, ongoing process in which the student uses free time during the first year to read, study and review information from courses and the literature. Students are expected to maintain their coursework and lab rotations while preparing for the
Preliminary Examination. The student is expected to consult with each faculty member regarding resource material to be utilized in preparation.

Research

1. Laboratory Rotation and Selection of a Major Professor

The second emphasis of the doctoral training program will be on research and time for research will increase each year. In the Fall Semester new students will be introduced to ongoing Departmental research by meeting with faculty members to discuss their research. Each new student will select a minimum of four (4) faculty members for rotation in their respective. The rotation will allow the student to gain first-hand knowledge of the research in these selected laboratories and serve as a basis to choose a major professor. Two rotations will be completed in the Fall Semester and two in the Spring Semester.

The selection of a major professor will be after the Preliminary Examination. The student will list his/her order of choice in a letter to the Director of Graduate Studies. Every effort will be made to place the student in the laboratory of his/her choice provided the faculty member is agreeable and room and funds are available to support the student's research.

Faculty members who accept the responsibilities of having graduate students enter their laboratory and serving as the student's advisor (major professor) are expected to obtain financial support on their grants for the student by the beginning of the student's second year of graduate school.

The student is expected to devote a considerable amount of time to research both in the laboratory and in the library even though course work is in progress. A key part of developing into a biomedical scientist is for the student to learn how to partition his/her time so that progress can be made in research while courses are taken.

The Research component of the doctoral program will consist of research in the laboratory, presentations at research seminars (see below), preparation and defense of a research proposal in the NIH grant application format, presentation of research findings at scientific meetings, publication of papers, and finally the preparation and defense of the doctoral dissertation.

2. Selection of Dissertation Committee

This Dissertation Committee is usually established at the beginning of the second year after the student has selected a major professor and has begun to identify his/her research problem. The members of the Dissertation Committee should be faculty who have expertise in research, especially in the areas of research that may relate to the student's area of experimentation. One major function of the Dissertation Committee is to provide advice and support regarding the student's research and to help monitor the development of the student into a productive, careful, and competent investigator. The Dissertation Committee also helps the major professor evaluate the student's progress in his/her research and advises the student of the elective coursework best suited to his/her needs.

The Dissertation Committee must be comprised of at least five (5) faculty who are eligible to serve according to the rules of the School of Graduate Studies. Four of the members should be from the Department of Physiology, including the major professor, and one must be from outside the
Department. The member from outside the Department of Physiology may be from a different Department such as Biochemistry or Pharmacology or from a different institution. Before inviting the individual faculty to serve on the Dissertation Committee, the major professor must have the Department Head approve the committee. The composition of all Dissertation Committees will be discussed and reviewed by the Department Head and the student's Advisor.

The Dissertation Committee is expected to meet every six (6) months (during September and March) to review the student's progress. A brief report of the Dissertation Committee's recommendations must be prepared in writing by the major professor and provided to the student, the Director of Graduate Studies, and the Department Head. In addition, a copy of this report is to be placed in the student's file. The progress of each student will be discussed by the entire faculty at departmental faculty meetings.

3. Quality of the Student's Research

The dissertation research must be a contribution to the field and is expected to generate original findings that address a fundamental question. It is expected that the major substance of the study will be published in journals of international repute and that the student will present his/her research findings at local, regional, national or international meetings of scientific societies in the student's field. One first author publication "in press" or published by a peer-reviewed journal will be required for graduation.


A major component of a training program is to teach students about the real world of an academic research career. Integral to this is the preparation presentation, and peer review of a research proposal. This proposal is written in the National Institute of Health (NIH) grant format by the student and includes Background information from the literature, Specific Aims, Rationale, Preliminary Data, and Methods to be used to answer the questions being asked. The topic of the proposal will represent the student’s dissertation work and must be approved by the student’s doctoral Dissertation Committee prior to preparation of the application. The Research Proposal is primarily the responsibility of the student with appropriate input from the major professor. When completed, the research proposal will be reviewed by the student's Dissertation Committee, and the student will defend the proposal in front of the Committee. It is expected that the grant proposal will be submitted in April of the second year to the Office of Research for consideration for an intramural predoctoral fellowship award. If the student is successful in obtaining a predoctoral fellowship award, the grant will be discussed by the committee members, but a formal exam is not required for the student to pass the grant writing portion of the Ph.D. program requirements. If the student is not successful, then a formal exam will be organized by the fall of the third year. The written document will be examined by the committee and the student will need to defend the proposal with an oral presentation at a committee meeting.

Preparation of the research proposal allows the student to pursue a research problem to a meaningful conclusion, become aware of the findings of other researchers in his/her field, learn what a research grant is and how to prepare one, focus on his/her major research aims and the rationale and methods to achieve goals, as well as introducing the student to the peer review process. If the grant proposal is not written prior to the end of the fall of the third year, the student is require to write a grant proposal that is on a different topic than his/her dissertation.

5. Preparation and Defense of the Doctoral Dissertation
A. Field Examination

An outline of the literature review for the Ph.D. dissertation must be approved by the Dissertation Committee. Upon successful completion of the literature review, an oral examination (field examination) will be administered by the student's Dissertation Committee on this material. The field exam is usually scheduled 4-6 weeks prior to the dissertation defense. Successful completion of the field exam is required for the dissertation defense and final exam.

B. Preparation of Doctoral Dissertation

The dissertation is prepared by the student with the guidance and advice of his/her major professor and Dissertation Committee. Instructions for the preparation of the dissertation are provided in the "Instructions for Thesis and Dissertation Writing" booklet, which is available through the Office of Graduate Studies. With the permission of the student's Dissertation Committee, the student can utilize the European format for the dissertation. Upon completion of the dissertation, the student should provide copies of the dissertation to all members of his/her Dissertation Committee, to the Director of Graduate Studies, and to the Department Head. After an appropriate period of time (approximately 14 days, during which the student should be available to provide information or clarifications requested by his committee members), the student's major professor should contact each member of the Dissertation Committee and determine whether the dissertation is completed to a degree that will allow scheduling of the Defense and Final Examination. If two or more members of the Dissertation Committee feel the dissertation is incomplete and/or a quality unsuitable to schedule the Defense, the Committee will meet and make specific recommendations.

C. Defense and Final Examination

This exam should be scheduled no earlier than 4-6 weeks after successful completion of the field exam, and no sooner than one month after submission of the final dissertation to the Dissertation Committee. The Dissertation Defense and Final Examination will focus on the dissertation research and the dissertation itself. The student is expected to answer questions about the work, defend the validity of the conclusions, discuss suggestions for revisions to improve clarity, etc.

After the student has answered questions about the dissertation, the Committee will discuss the dissertation and final revisions that may be necessary and vote whether the student has passed the Final Examination. Voting to accept the dissertation (with all recommended revisions) will be by ballot with no more than one negative vote permitted. If the dissertation is not acceptable and/or the student is judged to have failed the examination, the Dissertation Committee is expected to inform the student in writing, of the reasons for the failure with a copy provided to the Head of the Department, the Director of Graduate Studies, and the Dean of Graduate Studies.

6. Final Research Seminar and Certification

Once the student has passed the Final Examination and the dissertation has been accepted by the Dissertation Committee, the student is required to present a final research seminar open to all faculty, students, and staff of the Department of Physiology and interested members of other departments. The purpose of this seminar is to allow the student to present the overall view of his/her doctoral research
and to demonstrate to new and intermediate level graduate students as well as to other members of the Medical Center the high quality of research expected for the doctoral degree.

When the student has passed his/her Defense and Final Examination and scheduled the final research seminar and published (or "in press") a first author paper on his/her dissertation research in a peer reviewed journal, he/she will be certified to the Graduate Faculty and Chancellor as having met all requirements for the degree of Doctor of Philosophy in Molecular and Cellular Physiology.

**Seminar**

1. **Importance of a Seminar Program**

   Seminar is the one occasion in which all faculty, postdoctoral researchers, and graduate students meet regularly and discuss research findings and new developments in the disciplines of Physiology. It is an important component of a training program for the predoctoral and postdoctoral student and is a special opportunity for the graduate student: a) to learn how to present and discuss experimental data, b) to think on his/her feet, and c) to demonstrate his/her ability as a biomedical scientist. A good seminar program in which all researchers within the department participate can be an enjoyable activity that fosters unity and mutual respect among the participants and provides an atmosphere that promotes research and collaborative investigations.

2. **Policy Statements for Graduate Students**

   A. Attendance at all Departmental seminars and at seminars given by visitors to the Department is mandatory. Each student is expected to attend every seminar (unless it conflicts with classes) and students are expected to participate actively by asking questions, contributing to the discussion, etc.

   B. Every graduate student in the Department of Molecular and Cellular Physiology is to present a minimum of two seminars in the departmental seminar program. In general, these seminars will concern the student's research problem. The topic for presentation and the date of the seminar must be approved by the faculty member in charge of the seminar program.

   C. The final research seminar will be presented after the dissertation has been accepted by the student's Dissertation Committee and is a final overview of the student's research achievements.

**Other Scholarly Activities**

   In addition to the requirements concerning Coursework, Research, and Seminar, every graduate student is expected to participate in other scholarly activities. These activities vary from individual to individual, but students are expected to participate in journal clubs, to develop good reading habits so that they can keep abreast of major developments in their field and in related biomedical sciences, to present their research findings at meetings of professional societies in their field, to show leadership and maturity by assisting other graduate students and staff in research techniques and the use and maintenance of instrumentation, to help in the active recruitment of graduate students into the program, and to take an active role in maintaining the research environment of the Department and the University. It is expected that every doctoral candidate will publish at least one first-author paper on the findings from his/her dissertation research in a national/international journal.
Teaching

Teaching is an important aspect of the doctoral training program, and all students are required to participate in teaching. This will take the form of assisting in the teaching of the Allied Health Physiology Course.
GENERAL DESCRIPTION OF THE PROGRAM

The goal of the graduate training program in Pharmacology, Toxicology and Neuroscience is to provide the skills necessary for the graduate to pursue an independent career in biomedical research at a university, research institute, hospital, government agency, or in industry. The program provides graduate training through advanced courses, participation in seminars and national meetings, and the preparation of grant proposals. Hands-on laboratory research is emphasized at all stages of the program.

The major research interests in the Department of Pharmacology, Toxicology and Neuroscience are in the areas of: NEUROPHARMACOLOGY, NEUROSCIENCE, TOXICOLOGY, DRUG AND ALCOHOL ADDICTION, STRESS, GENE THERAPY, MOLECULAR BASIS OF LOCOMOTOR ACTIVITY IN AGING AND NEURODEGENERATIVE DISEASE, BIOTECHNOLOGY, CARCINOGENESIS AND CANCER CHEMOPREVENTION, OXIDATIVE MECHANISMS OF TOXICITY, MOLECULAR REGULATION OF TOXICITY AND APOPTOSIS

REQUIREMENTS FOR ADMISSION

1. A baccalaureate degree from a college or university approved by a regional accrediting agency.

2. A grade point average of at least 2.5 for undergraduate work, and 3.0 for graduate work, on a 4 point scale and based upon all work for which a grade is given.

3. Applicants must have successfully completed one year of general chemistry and one year of a biological science and at least one course in organic chemistry. Successful completion of a course in biochemistry and an upper level biology course are strongly recommended. A Biochemistry and Molecular Biology tutorial during the summer following admission is required.

4. Satisfactory scores on all three portions of the Graduate Record Exam (GRE). A minimum combined Verbal and Quantitative score of 300 is recommended.

5. Applicants not from an English-speaking country must achieve a score of 550 (paper) or 213 (computer) or better on the Test of English as a Foreign Language (TOEFL) examination.

6. Three letters of recommendation from individuals familiar with the applicants' academic work, at least two of which must be from former professors. One letter from each academic institution in which the student has taken courses is required.
7. Interview by the Departmental faculty. The applicant must be judged acceptable by the majority of the faculty and the Department Head. The interview requirement may be waived in the case of exceptionally qualified applicants or international applicants.

ADMISSION PROCEDURE

The applicant should first review the Department of Pharmacology website (see above), which contains the most up-to-date information about Departmental programs, courses, faculty and trainees. The applicant should then contact the Graduate Program Recruiter of the Department of Pharmacology, Toxicology and Neuroscience, LSU Health Sciences Center, P.O. Box 33932, Shreveport, Louisiana, 71130-3932, Telephone (318) 675-7851, email tmoren@lsuhsc.edu. A preliminary application form, obtainable from the Department or the website, must be completed so that the Department can review the applicant's qualifications before he/she submits an official application to the Graduate School. Copies of the transcripts, GRE scores (and TOEFL scores, if applicable) and three rating forms from qualified individuals must be submitted at the same time. The Department may arrange for the applicant to visit the Department. If the faculty agrees that the applicant is acceptable to the Department, an official application must then be submitted to the School of Graduate Studies, one copy of each official transcript must be sent from the Registrar's office of each college or university attended by the applicant, and the original results of the Graduate Record Examination (and the TOEFL, if applicable) must be forwarded directly to the School of Graduate Studies by the Educational Testing Service.

RESIDENCE REQUIREMENTS FOR THE DOCTORAL STUDENT

Normally, it takes four or more years to complete the requirements for the doctoral degree. Students who enter the doctoral program with an M.S. or other graduate degree in science may be allowed to complete the program in less time, but these students must meet all requirements, pass the Qualifying and Preliminary Examinations, and prepare and defend a Doctoral Dissertation.

STIPEND AND FINANCIAL SUPPORT

The Department makes every effort to provide financial support to full-time doctoral students who are in good academic standing and who continue to make progress toward the degree. Stipends and tuition waivers are available from a variety of sources. These include Departmental fellowships, individual fellowships, departmental training grants, and research assistantships on individual research contracts and grants. Students who are Pre-Proposal will receive a stipend of $24,000 per year. After students have become doctoral candidates, as defined by passing the Preliminary Examination (Dissertation Proposal), the stipend will increase to $25,000 per year.

Students are encouraged to apply to granting agencies such as the National Science Foundation, National Institutes of Health (NIH), American Heart Association, Department of Defense, Pharmaceutical Research and Manufacturers of America Foundation, Howard Hughes Medical Institute etc., to obtain individual predoctoral fellowships. Applicants should consult the Department Graduate Program Director and the Office for Sponsored Programs regarding the possibilities. Students are encouraged to submit their dissertation proposals to NIH as individual National Research Service Awards (NRSA). Students who receive external fellowships that pay for their stipend are
eligible for an up to a $5000 yearly stipend supplement to be provided by the Department or their advisor.

Intramural predoctoral fellowships are also available to graduate students who have completed the major portion of their coursework and successfully passed their dissertation proposal defense. Applications for these fellowships are accepted twice each year, in October and in April. Three types of fellowships are available, (1) Malcolm Feist, for cardiovascular research, (2) Carroll Feist, for cancer research, and (3) Ike Muslow, for research in all other areas. These fellowships provide $28,000 yearly stipends and are renewable twice, for a total of 3 years of funding. Students are encouraged to submit applications, based on their dissertation proposals, to one of these sponsors.

The Department will make every effort to administer funds for stipends and financial assistance as fairly and equitably as possible. Graduate students receive stipends and financial help to allow them to devote all their energy and time to their research and graduate training. Therefore, students may not seek outside employment, even part-time. LSU rules do not permit graduate students receiving stipends to receive additional funds from University employment. Students in financial difficulty should discuss this matter with their advisor, the Departmental Graduate Program Director, the Department Head, or the Dean of the School of Graduate Studies.

Students will receive a maximum of 4 years of departmental financial support for their stipend. Academic advisors are expected to pay for the student's stipend after the student has passed the Preliminary Examination. If an advisor has insufficient resources to pay for the stipend, the student should apply for grants and fellowships since departmental funds are limited.

Students receiving financial support must maintain a B average (good academic standing), to make continual progress toward their degree, and to follow the recommendations of their Advisory Committee and major professor. Student progress will be reviewed annually by the faculty, and the results of this evaluation will determine continuation in the program and financial support. Stipends will be revoked for students on academic probation beginning one semester after placement on probation. For example, if a student is placed on probation at the end of the fall semester and fails to achieve a 3.0 cumulative GPA by the end of the spring semester, the student will lose their stipend at the start of the summer semester. Students will receive academic advising and counseling from the Graduate Program Director and other appropriate educational personnel as needed.

**TUITION FOR Ph.D. STUDENTS**

Generally students receiving stipends will have their tuition paid by funds from the School of Graduate Studies. However, financial exigencies may limit the availability of tuition funds.

**HEALTH INSURANCE AND ACTIVITY FEE**

The School of Graduate Studies requires all students to be responsible for the payment of the University Activity Fee, and to purchase Health Insurance or provide evidence of other health care coverage. Students are also responsible for other incidental fees such as the costs of their thesis and dissertation binding, diploma costs, and other expenditures that are not covered by tuition.
**LEAVE**

*Personal days*
All graduate students are entitled to 10 working days of personal time. The 10 days allotted each year cannot be accrued (carried over to the next academic year). In addition, any unused time will be forfeited. The request for annual leave must be submitted at least two weeks prior to the desired start date to the student’s Dissertation Advisor (or Departmental Graduate Program Director for all first year students) and the Department Head. If not requested prior to the absence, appropriate forms should be completed immediately after leave has been taken.

Students are also permitted 2 days of funeral leave to attend services or burial rites for immediate family members (father, mother, sibling, spouse, child, in-laws, grandparents, grandchild, and step-father, step-mother, and step-siblings). The student should submit a leave request indicating the desired dates for funeral leave. If not requested prior to the absence, appropriate forms should be completed immediately after leave has been taken.

*Leave of Absence*
Leave of absence without pay may be granted for extended illness, disability or personal reasons. The student should submit a written request explaining fully the reason(s) for the request and indicate the dates on which the leave of absence will begin and end. As much notice as possible should be given to the student’s Dissertation Advisor (or Departmental Graduate Program Director for those students who have not yet selected a Dissertation Advisor), the Department Head, and the Dean of Graduate Studies before beginning the leave. Leaves of absence will not be granted for periods that exceed one year. A written request for reinstatement into the program must be submitted to the Department and the School of Graduate Studies at least two weeks in advance. If the Leave of Absence exceeds one year then re-application to the program and Graduate School will be required.

*Training-Related Travel*
Attending meetings, conferences, or learning in skills from researchers at outside universities can be valuable training experiences for students. It is expected that students will present his/her research findings at regional, national or international meetings of appropriate scientific societies. Prior Approval forms are required for all travel outside the campus, even if no reimbursement is requested. The Prior Approval forms must be completed and turned into the Graduate Program Director at least 2 weeks before travel. If the travel is scheduled for sooner than 2 weeks, the student must e-mail the Department Head indicating that the need for immediate travel and asking for approval to be expedited. The student’s Major Advisor must indicate his/her approval of the travel and any budget expenditures by initialing the completed form next to your signature. In general, travel to conferences is not permitted for first year students if it will require that the student must miss any classes. If the conference will not interfere with coursework, then for first year students, the Graduate Program Director will initial the forms. Failure to complete the forms in a timely fashion may result in disapproval of the request, non-reimbursement of expenses, or require that annual leave be taken. There is no guarantee that training-related travel will be reimbursed, so students should discuss their travels plans carefully with their advisors.

**EXIT PROCEDURES**
Graduate Students must follow the same exit procedures as any employee. Human Resources Management requires a resignation letter, Employee Clearance Form, and Separation Summary. Turning in keys, ID Badge, and CopyMate card are part of the exit procedures. The
REQUIREMENTS FOR THE Ph.D. DEGREE IN PHARMACOLOGY

The Doctor of Philosophy is the highest academic degree offered by the University. It is conferred only for work of distinction in which the student displays original scholarship. The major emphasis of the doctoral program in the Department of Pharmacology, Toxicology and Neuroscience will be to provide an environment for the student to learn how to think, how to answer research questions in the laboratory and in the literature, how to write and communicate, and how to develop into a competent biomedical scientist. The doctoral program consists of ten major components:

I. RESEARCH
II. COURSEWORK
III. JOURNAL CLUB
IV. SEMINAR
V. ANNUAL REPORT AND EVALUATION
VI. QUALIFYING PROCESS (WRITTEN AND ORAL QUALIFYING EXAMINATIONS)
VII. PRELIMINARY EXAMINATION (DISSERTATION PROPOSAL)
VIII. DOCTORAL DISSERTATION
IX. TEACHING
X. OTHER SCHOLARLY ACTIVITIES
XI. SERVICE

I. RESEARCH

A. Research Program

The Research component of the doctoral program consists of laboratory research, presentations at research seminars (see below), the formulation of a research proposal, presentation of research findings at scientific meetings, writing papers for publication, and the preparation and defense of a Doctoral Dissertation. The student is expected to devote a considerable amount of time to research both in the laboratory and in the literature even during the first two years when there is substantial course work. A key part of becoming a biomedical scientist is for students to learn how to apportion their time so that progress can be made in research. The emphasis will be on research and the time available for research will increase each year. New students will be apprised of the ongoing research of the faculty during the first semester. During the first year, students will gain first-hand knowledge of the research in selected laboratories during rotations through these laboratories.

B. Laboratory Rotations (PHARM 203)

Students will gain experience in research laboratories by a series of rotations in their first year. This experience will form the basis for the choice of a faculty advisor. The duration of the rotation will depend on current Department policies, but normally a student will perform three such rotations. Rotations will be approximately ten weeks in length. The first rotation will take place during the first summer semester of the program. The second rotation will be during the fall semester of the first year, and the third will occur during the first ten weeks of the spring semester. Students will be expected to spend approximately 15-20 hours per week in the laboratory for their rotations.
A minimum of two rotations in different laboratories of prime Department Faculty members is required. Only one rotation can be in the laboratory of a jointly appointed Faculty member. Rotations must be scheduled with the faculty member(s) involved on an individual basis. Students must also notify the Graduate Program Director and Course Director of Methods in Pharmacology PHARM 203 which faculty member will advise them during the rotation. At the end of each rotation, the student must prepare a written report of the research accomplished and submit it to the head of the laboratory, with a copy to the Departmental Graduate Program Director. The student's grade for the course (Methods in Pharmacology, PHARM 203) will be determined by the faculty member in whose laboratory they worked based on both the quality of the research and the written report.

C. Selection of a Major Professor
The selection of the major professor (advisor) will be made by the student in a letter to the Department Head. Students will choose their major advisor after completing their rotations and begin their dissertation research thereafter. Every effort will be made to place the student in the laboratory of his/her choice provided that the faculty member is agreeable and that space and funds are available to support the student and his/her research.

Faculty members who accept the responsibilities of having a graduate student join their laboratory and serving as their advisor are expected to make every effort to obtain financial support for the student. The major advisor will be responsible for the stipend after the student completes the Preliminary Examination. Faculty members holding research grants will be expected to provide support for students working on the funded project. This support will conform to the current level of stipends set by the Department Faculty.

D. Research Advisory Committee
The student's Research Advisory Committee exists to advise him/her as he/she progresses through the graduate program. Its primary function is to advise the student on the direction(s) of his/her research, but it will also be involved in helping the student select elective courses and in examining the student's Research Proposal and Doctoral Dissertation. The student is required to meet with his/her Research Advisory Committee at least twice a year. This will allow the Committee to track the student's progress to assure timely completion of the program. For first year students, the Graduate Program Director will schedule the meetings. For students in the second year and beyond it is the responsibility of the student to schedule these meetings and to report to the Graduate Program Director that such a meeting has occurred. There are two types of Research Advisory Committees based on the stage of the student’s career.

First Year Committee: At the end of the student’s first and second semesters, the student must meet with the Departmental Graduate Program Director, the Chair of the Graduate Recruitment Committee, and his/her laboratory rotation mentors to discuss his/her progress. The Department Head will also participate when possible.

Research Advisory Committee: After a student has chosen a major advisor, he/she should select a Research Advisory Committee. The Committee’s function will be to provide advice and support for the student’s education and research and to assist in formulating the Research Proposal. This committee should be formed as early as possible following selection of a major advisor, but no later than the start of the Qualifying Examination process. This will ensure that the committee members can adequately evaluate the quality of the Research Proposal. An informal research advisory committee may be formed by the student during the second year in consultation with their major advisor. This committee
must contain at least four members from the department (including the major advisor), but does not need to contain outside members. This committee will serve until the formal committee is chosen, prior to filing the Research Proposal. The members of the informal committee must be approved by the Department Head, but do not need to be approved by the graduate school.

The formal committee will be composed of five members of the LSUHSC-S Graduate Faculty: the Major Advisor (Chair), three faculty members from the Department of Pharmacology, Toxicology, and Neuroscience, and one faculty member whose primary appointment is in another LSUHSC-S department. For the purposes of the Research Advisory Committee, faculty members with joint appointments in the Pharmacology Department will be considered a Pharmacology Department committee member. The composition of this Committee should be formalized in a letter to the Department Head, who must approve the composition of the Committee. The members of the student’s Research Advisory Committee, including the Major Advisor, may be changed at any time up until successful completion of the Preliminary Examination/Research Proposal Defense with the approval of the Department Head. In addition to advising the student on coursework and research, the Research Advisory Committee will conduct the Preliminary Examination and final examination of the Doctoral Dissertation.

II. COURSE WORK FOR THE DOCTORAL DEGREE

Each student is expected to know and understand the concepts, experimental approaches, and recent developments in the field of Pharmacology and Toxicology or Neuroscience. To obtain this knowledge, the student is required to complete a core curriculum of graduate courses and to supplement this core with other courses recommended by his/her major professor and/or the Advisory Committee. For the Ph.D. degree, the School of Graduate Studies requires a minimum of 32 credit hours of which at least 20 must be in letter grade courses. Because of the complexity of pharmacology and its reliance on other basic sciences, the number of credit hours necessary for the Ph.D. degree exceeds this minimum.

A. Good Academic Standing and Probation

Students must remain in good academic standing at all times to remain in the program. Students who fail to maintain at least an overall grade point average of 3.0 (i.e. a “B”) or higher on a 4.0 scale will be placed on probation. They will have one calendar year from the end of the semester at which the GPA falls below 3.0 (normally the three subsequent semesters) to raise their overall average to 3.0. Students who fail to raise their average to “B” will be dropped from the Program. Students on probation may lose their stipends and tuition waivers (see additional information in the Stipend section).

Students are expected to earn a grade no lower than a "B" in each of the courses offered by the Department of Pharmacology, Toxicology and Neuroscience. If a student earns a grade less than a "B" or an unsatisfactory grade in a S/U course, including Research in Pharmacology (PHARM 203), he/she will be expected to repeat or remediate that course. Students are required to receive a "B" or better in IDSP 211 General Principles and in seven out of the nine credits for the IDSP 200 series Foundations in Biomedical Sciences. A "C" will be required for the remaining 2 credits. If there are grades lower than a "C" or more than 2 credits in which a "C" was achieved, students will need to retake appropriate coursework.
B. **Core Curriculum** for all doctoral students. The IDSP courses are interdisciplinary and include the Departments of Cellular Biology and Anatomy, Biochemistry and Molecular Biology, Microbiology and Immunology, and Molecular and Cellular Physiology.

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Listing</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Methods in Pharmacology</td>
<td>PHARM 203</td>
<td>9</td>
</tr>
<tr>
<td>(3 each semester)</td>
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</tr>
<tr>
<td>2) Biochemistry and Molecular and Cell Biology:</td>
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<tr>
<td>Advanced Topics in Pharmacology: Biochemistry</td>
<td>PHARM 221</td>
<td>2</td>
</tr>
<tr>
<td>Advanced Topics in Pharmacology: Molecular Biology</td>
<td>PHARM 222</td>
<td>2</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic Biochemistry and Molecular and Cell Biology I</td>
<td>IDSP 111</td>
<td>2</td>
</tr>
<tr>
<td>Basic Biochemistry and Molecular and Cell Biology II</td>
<td>IDSP 112</td>
<td>2</td>
</tr>
<tr>
<td>3) Introduction to Research in Pharmacology</td>
<td>PHARM 209</td>
<td>1</td>
</tr>
<tr>
<td>4) Foundations of Biomedical Sciences I:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Principles</td>
<td>IDSP 211</td>
<td>1</td>
</tr>
<tr>
<td>Cardiovascular System</td>
<td>IDSP 212</td>
<td>2</td>
</tr>
<tr>
<td>Renal System</td>
<td>IDSP 213</td>
<td>1</td>
</tr>
<tr>
<td>Respiratory System</td>
<td>IDSP 214</td>
<td>1</td>
</tr>
<tr>
<td>Gastrointestinal System</td>
<td>IDSP 216</td>
<td>1</td>
</tr>
<tr>
<td>Endocrine System</td>
<td>IDSP 217</td>
<td>1</td>
</tr>
<tr>
<td>Nervous System</td>
<td>IDSP 218</td>
<td>2</td>
</tr>
<tr>
<td>Inflammation, Infection and Cancer</td>
<td>IDSP 219</td>
<td>1</td>
</tr>
<tr>
<td>5) Basic Statistics</td>
<td>IDSP 226</td>
<td>1</td>
</tr>
<tr>
<td>Advanced Statistics</td>
<td>IDSP 227</td>
<td>1</td>
</tr>
<tr>
<td>6) Pharmacokinetics and Pharmacodynamics</td>
<td>PHARM 258</td>
<td>1</td>
</tr>
<tr>
<td>7) Molecular Pharmacology</td>
<td>PHARM 260</td>
<td>2</td>
</tr>
<tr>
<td>8) Neuropharmacology</td>
<td>PHARM 233</td>
<td>2</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toxicology</td>
<td>PHARM 245</td>
<td>2</td>
</tr>
<tr>
<td>9) Journal Club</td>
<td>PHARM 272</td>
<td>2</td>
</tr>
<tr>
<td>(1 each semester first year)</td>
<td>PHARM 270-271</td>
<td>2</td>
</tr>
<tr>
<td>(1 each semester year 2+)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10) Pharmacology Seminar</td>
<td>PHARM 298</td>
<td>4+</td>
</tr>
<tr>
<td>11) Grant Writing</td>
<td>IDSP 235A</td>
<td>1</td>
</tr>
</tbody>
</table>
C. Additional Curricula for Areas of Specialization

All students enrolled in the Department of Pharmacology will be considered departmental graduate students and, as such, required to complete the core curriculum. At the start of their second year, students will choose either the Neuroscience or Toxicology track. In the fall semester of their second year, students will take either Neuropharmacology/Neurochemistry OR Toxicology, as appropriate. Note that they may take both if desired. A set of advanced electives has been established for each of these specialization tracks. For the Toxicology track, students will enroll in at least two of these electives, based on recommendations from their advisor and/or Advisory Committee. Students in the Neuroscience track will enroll in at least two of these electives.

I. NEUROSCIENCE
   Recommended courses:
   - PHARM 240 - Behavioral Pharmacology I
   - PHARM 242 – Pharmacology of Drugs of Abuse
   - PHARM 225 – Advanced Topics in Pharmacology
   - IDSP 230 – Advances in Gene Therapy

II. TOXICOLOGY
   Recommended courses:
   - PHARM 220 - Clinical Toxicology
   - PHARM 243 - Environmental Toxicology
   - PHARM 238 – Cardiovascular Pharmacology
   - PHARM 225 – Advanced Topics in Pharmacology
   - IDSP 230 – Advances in Gene Therapy
   - IDSP 250 – Current Trends in Toxicology

D. Elective Courses

The student will be required by his/her Advisory Committee to supplement the core curriculum with advanced courses, including courses from other departments, as appropriate. At least one of these courses must be a letter-graded (A-F) course. A listing of the graduate courses offered by the Department of Pharmacology, Toxicology and Neuroscience is included below (II F).

E. Transfer of Graduate Credit

Transfer of graduate course credits earned in a graduate program at another institution is possible with the approval of the Department Faculty and the School of Graduate Studies. In order to waive the requirement for enrollment in the Foundations of Biomedical Sciences or Biochemistry and Molecular and Cell Biology courses, the student may be required to take a comprehensive exam in those areas.
and to score a B or better. All students will be required to take the graduate level courses (PHARM 203, 258, 260, 270 (or 271 or 272), 298, 299, 400) while in residence at LSUHSC-S.

Students with M.D., D.D., or D.V.M. degrees from US accredited institutions who are accepted into the graduate program within one year of receipt of their professional degree may petition to be exempt from taking Foundations of Biomedical Sciences, and Basic Biochemistry and Molecular and Cell Biology as part of the core curriculum. Students with an M.D., D.D., or D.V.M. degree who are accepted into the graduate program two or more years after completion of their professional degree may be required to take the Foundations of Biomedical Sciences, Basic Biochemistry and Molecular and Cell Biology courses as deemed appropriate by the faculty.

F. Listing and description of graduate courses in Pharmacology and Therapeutics

**PHARM 203 Methods in Pharmacology**  (3 Credits, letter grade)
- Faculty Member in charge: Kenneth McMartin, Ph.D.
- When course is offered: Every semester
- Prerequisites for course: None
Description of course: Hours and credit by arrangement. Consists of rotations through laboratories of department faculty. In general, the course should be taken for each rotation.

**PHARM 204 BRAIN (Brain Research through Advanced and innovative Neurotechnologies)**
- Faculty member in charge: Xiao-Hong Lu, Ph.D.
- When course is offered: As needed
- Prerequisites for course: IDSP 218
The objective of the course is to enhance the students’ depth of knowledge of the cutting edge genetic molecular and pharmacologic approaches used for the anatomic and functional interrogation of neural circuitry, brain development and disease. The course is in the format of seminars, lab demonstrations and group discussions. Students will be assigned papers to read before the class wherein the lectures and in-lab demonstrations are given, followed by in-depth group discussions of the topic under study.

**PHARM 209 Introduction to Research in Pharmacology**  (1 Credit, S/U)
- Faculty Member in charge: Ronald L. Klein, Ph.D.
- When course is offered: Summer, Annually
- Prerequisites for course: None
Description of Course: An introduction to research in Department of Pharmacology labs for incoming graduate students. This course will aid students in choosing their research rotations.

**PHARM 220 Clinical Toxicology**  (1 Credit, letter grade)
- Faculty Member in charge: Kenneth E. McMartin, Ph.D.
- When course is offered: Summer, Annually
- Prerequisites for course: None
Description of course: Three day, all day course of lectures and panel discussion. This course deals with clinical and laboratory methods for the diagnosis and treatment of intoxication from drug over dosage and poisons. Special problems associated with drug abuse and industrial and environmental toxicology are also discussed. Independent topical paper is required.
PHARM 221 Advanced Topics in Pharmacology: Biochemistry  (2 Credits, letter grade)

Faculty Member in charge: Yunfeng Zhao, Ph.D.
When course is offered: Fall, Annually
Prerequisites for course: None

Description of course: Biochemistry portion of Medical School Module 1, Course 1 (Physiological Chemistry, Medical Genetics, and Developmental Biology). An overview of the basic biochemical properties of amino acids and proteins, lipids, and carbohydrates. The class also includes the basic principles of enzyme kinetics, membrane transport, and important biochemical processes and enzymes that cells utilize to generate metabolic energy.

PHARM 222 Advanced Topics in Pharmacology: Molecular Biology  (2 Credits, letter grade)

Faculty Member in charge: Yunfeng Zhao, Ph.D.
When course is offered: Fall, Annually
Prerequisites for course: None

Description of course: Molecular biology portion of Medical School Module 1, Course 1 (Physiological Chemistry, Medical Genetics, and Developmental Biology). The course is a basic introduction to nucleic acids structure and function including replication, transcription, RNA processing, and protein synthesis.

PHARM 225 Advanced Topics in Pharmacology  (1-5 Credits, letter grade)

Faculty Member in charge: Staff
When course is offered: As required
Prerequisites for course: Foundations in Biomedical Sciences

Description of course: Hours and credits as well as lecture and laboratory to be arranged depending upon the special topic. This course is designed for advanced studies of special groups of drugs such as steroids, antibiotics, antihistamines, analgesics, etc.

PHARM 233 Neuropharmacology (2 Credits, letter credit)

Faculty Member in charge: Ronald L. Klein, Ph.D.
When course is offered: Fall, Annually
Prerequisite for course: Foundations in Biomedical Sciences: Nervous System (IDSP 218)

Description of course: A study of the structure and properties of membranes, axoplasmic transport, and the fundamental principles of neurotransmission and neuroendocrinology. Detailed study of the chemical transmitters in the central nervous system with special emphasis on drug-modifications of transmitter action and neuronal function, drug-modification of physiological function and behavioral pharmacology.

PHARM 238 Cardiovascular Pharmacology (2 Credits, letter grade)

Faculty Member in charge: James H. Zavec, Ph.D.
When course is offered: As required
Prerequisites for course: Foundations in Biomedical Sciences: Cardiovascular System (IDSP 212)

Description of course: Two hours of lecture. The study of drugs used to treat cardiovascular disorders with primary emphasis on their fundamental mechanisms of action.
PHARM 240  Behavioral Pharmacology I  (1 Credit, letter grade)
  Faculty Member in charge:  Christopher Schmoutz, Ph.D.
  When course is offered:  As required
  Prerequisites for course:  Neuropharmacology (PHARM 233)

PHARM 242  Pharmacology of Drugs of Abuse  (1 Credits, letter grade)
  Faculty Member in charge:  Nicholas Goeders, Ph.D.
  When course is offered:  As required
  Prerequisites for course:  Foundations in Biomedical Sciences: Nervous System (IDSP 218)
Description of course:  This course will discuss the behavioral and physiological effects of drugs of abuse and the mechanisms of action of these substances. This is a writing intensive course.

PHARM 243  Environmental Toxicology  (2 Credits, letter grade)
  Faculty Member in charge:  Kenneth E. McMartin, Ph.D.
  When course is offered:  Summer, or as required
  Prerequisites for course:  None
Description of course:  Two hours of lecture and classroom discussion. A study of the effects of industrial, agricultural and other human-produced pollutants on the deterioration of the environment. The control of environmental problems will be illustrated in case histories.

PHARM 245  Toxicology  (2 Credits, letter grade)
  Faculty Member in charge:  Yunfeng Zhao, Ph.D.
  When course is offered:  Fall, Annually
  Prerequisites for course:  Permission of instructor
Description of course:  Three hours of lecture and classroom discussion. A study of the general principles of toxicology, including the biochemical and physiological mechanisms involved in injury. Specific organ systems and toxic compounds will be discussed for illustration.

PHARM 251  Research in Pharmacology  (1-8 Credits, S/U)
  Faculty Member in charge:  Staff
  When course is offered:  As required
  Prerequisites for course:  None
Description of course:  This course offers an in-depth experience in research development, design, methodology and implementation. Students will undertake specific projects of limited scope and develop their findings under the guidance and direction of faculty preceptors.

PHARM 258  Pharmacokinetics and Pharmacodynamics  (1 Credit, letter grade)
  Faculty Member in charge:  James H. Zavecz, Ph.D.
  When course is offered:  Spring, Annually
  Prerequisites for course:  Basic Biochemistry and Molecular and Cell Biology (IDSP 111-113 or PHARM 221-223) and Foundations in Biomedical Sciences: General Principles (IDSP 211)
Description of course: Two hours of lecture, twice a week. In depth presentation of receptor quantification and drug pharmacokinetics. Material is covered in lecture and through the completion of problem sets. Student's progress is judged based on examination performance and take home problems.

PHARM 260 Molecular Pharmacology  (2 Credits, letter grade)
Faculty Member in charge: James H. Zavec, Ph.D.
When course is offered: Spring, Annually
Prerequisites for course: Basic Biochemistry and Molecular and Cell Biology (IDSP 111-113 or PHARM 221-223), Foundations in Biomedical Sciences: General Principles (IDSP 211) and Pharmacokinetics and Pharmacodynamics (PHARM 258)

Description of course: Two hours of lecture, twice a week and student presentations. This course provides a detailed examination of molecular events that occur during and after drugs bind to receptors. Intracellular signal transduction events and cross-talk among different systems are emphasized.

PHARM 270 Discussions in Neurochemistry & Neuropharmacology  (1 Credit, S/U)
PHARM 271 Discussions in Toxicology  (1 Credit, S/U)
PHARM 272 Discussions in Pharmacology  (1 Credit, S/U)
Faculty Member in charge: Ronald Klein, Ph.D.
When course is offered: Biannually, Fall and Spring
Prerequisites for course: None

Description of course: A journal club/research presentation format in which students present and discuss new concepts and research findings in topics relating to pharmacology (PHARM 272), neurochemistry and neuropharmacology (PHARM 270), or toxicology, including biochemical, clinical and environmental (PHARM 272). Students will be taught critical assessment of research data and how new techniques can be applied to research problems. Grading will be by faculty on the basis of student presentations and participation in class discussions.

PHARM 298 Seminar  (1 Credit, S/U)
Faculty Member in charge: Yunfeng Zhao, Ph.D.
When course is offered: Biannually, Fall and Spring
Prerequisites for course: None

Description of course: Students are required to attend and participate in oral presentations of research data. The student should register for seminar each year semester they are taking classes. Grades will be assigned based on seminar presentation, but students must participate in seminar each semester regardless of whether they are registered for the course.

PHARM 299 Research Proposal in Pharmacology (3 Credits, S/U)
Faculty Member in charge: Staff
When course is offered: Every semester
Prerequisites for course: Successful completion of Qualifying Examination

Description of course: A required course for all doctoral candidates. The student will write a proposal for his/her dissertation research in National Institutes of Health grant-application format. The proposal should contain sections on a) Specific Aims, b) Research Strategy (Significance, Innovation, and Approach), as well as a detailed budget and justification, and rationale for the use of animals or humans, if applicable. The proposal will be reviewed by the student's Research Advisory Committee,
and presented by the student before this Committee. The grade will be assigned by the Advisory Committee based on the scientific quality of the written proposal and its verbal defense.

**PHARM 300  Thesis Research (1-9 credits, S/U)**
- Faculty Member in charge: Staff
- When course is offered: Every semester
- Prerequisites for course: Registration by permission of advisor
- Description of course: Amount of credit must be stated at time of registration

**PHARM 400  Dissertation Research (1-9 Credits, S/U)**
- Faculty Member in charge: Staff
- When course is offered: Every semester
- Prerequisites for course: Registration by permission of advisor
- Description of course: Amount of credit must be stated at time of registration

### III. JOURNAL CLUB (PHARM 270, 271 or 272)

Appropriate assessment of the scientific literature is a critical activity for a scientist. To help students acquire this ability, the Department of Pharmacology, Toxicology and Neuroscience sponsors journal clubs in various areas of pharmacology. Journal clubs are intended to train students to assess the scientific literature, and to extend both the depth and the breadth of their knowledge. Students are expected to attend and actively participate in all meetings of the Pharmacology Journal Club. Absences due to illness or other unavoidable circumstances must be approved by the Graduate Program Director.

A. Pharmacology Journal Club

The Pharmacology Journal Club meets weekly. The Club is run by the graduate students with administrative support from the departmental office staff. A faculty coordinator will supervise the Pharmacology Journal Club. Currently, Pharmacology Journal Club meets at 1 pm every Wednesday.

B. Schedule

The schedule will be copied and distributed by the office staff to all faculty, postdoctoral fellows, graduate students, and other interested faculty and staff. Changes to the schedule must be arranged by the individual students concerned, and must be communicated to all participants by e-mail or memorandum.

C. Presentations

Students will be required to present journal clubs throughout their graduate school career. Students will present a mentored journal club (with assistance from a senior student) in their first semester of graduate school. Each presenting student must choose an article and an appropriate faculty mentor for their journal club not less than one full week before the scheduled presentation. Students are encouraged to make this selection long in advance. The faculty mentor must agree to read the article and attend the presentation. The Faculty mentor may also choose to approve or disapprove the article for presentation. Once the article is approved, the student must forward the PDF file of the article to the administrative support person by the Friday prior to the scheduled meeting. The choice of the
facultymentor will be included in the notice distributed with the article. An important role of the faculty mentor will be to direct the discussion and elicit participation by all of the students. If an article has not been approved by the Thursday before the presentation, the Journal Club Coordinator will assign one. Each participant should receive a copy of the article no later than the Friday before the presentation.

**Attendance at Pharmacology Journal Club is mandatory for all Ph.D. and M.S. graduate students. Other participants may attend as they wish.**

**IV. SEMINAR (PHARM 298)**

A. Importance of Seminar

Seminar is the one occasion on which all faculty, postdoctoral researchers, and graduate students meet regularly to discuss research findings and new developments in pharmacology. It is a special opportunity for the graduate student to demonstrate his/her abilities as a teacher and biomedical scientist, to learn how to present and discuss experimental data, and to think on his/her feet. A seminar program in which all researchers within the Department participate can be an activity that fosters unity and mutual respect among the participants and provides an atmosphere that promotes research and collaborative investigations.

B. Seminar Policy Statement for Graduate Students

In the spring semester of the first year, students will present a brief (15 minute) seminar based on the poster the student will subsequently present at Graduate Research Day. It should be delivered in a critical and informative manner such that the audience can appreciate the state of the art of the research. The student is expected to read a considerable body of literature so that he/she has a good understanding of the field and the techniques and experimental approaches being used to address the key questions.

In the first semester of the second year, students will present a 50 minute seminar based on the research being conducted in their resident laboratory. The talk is expected to cover research related to the student’s anticipated project. In the spring semester, the student will present a Dissertation Proposal and this presentation will count as the second year spring semester seminar. Students who have passed the Preliminary Examination (Dissertation Proposal) will present data discussions each subsequent fall and spring semester. The Data Discussion will be 25 min in length (plus 5-10 min for questions) and will update the faculty on the progress of their research. The Dissertation Defense will serve as the student's final seminar.

Seminars will start with statements of the questions asked and background information for the audience. The body of the seminar should contain the experimental rationale and methodology employed to answer the questions, followed by presentation of experimental data. The summary should contain the conclusions reached by the student from the presented data as well as a discussion of further studies that could be conducted. Students are encouraged to use computer-based presentations using such software applications as Microsoft PowerPoint. Slides should be prepared carefully, as for a professional presentation. The student is encouraged to practice the seminar with a senior student and/or his/her advisor.
One week prior to the seminar, the student must provide the Departmental staff with an approved abstract that will then be distributed to all faculty, postdoctoral trainees, and graduate students in the Department. The abstract should give the date, time and place of the seminar and present a summary of the seminar topic. **Attendance at Departmental seminars and at seminars given by visitors to the Department is mandatory.** Every student is expected to attend every seminar, and students are expected to participate actively in seminar by contributing to the discussion. Students who are registered for the course are required to participate actively in seminar by contributing to the discussion or by writing a short seminar summary for speakers who are from outside of LSUHSC-S. Summaries must be turned into the Faculty Seminar Coordinator within 7 days of the seminar or a grade of "U" will be given for the course.

V. THE DOCTORAL PROGRAM AT A GLANCE

Below is a representative list of courses that a typical student may take in the first 6 semesters of graduate study. This information is provided in “checklist” form, so as to aid the student in planning for registration. Note that these are based on current requirements and on the tracks offered by our department (i.e., Toxicology vs. Neuroscience). However, exact scheduling may vary.

### Ph.D. Degree Course Requirements Check List

#### Summer: Semester 1

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHARM 203</td>
<td>Methods in Pharmacology</td>
<td>3</td>
<td>letter grade</td>
</tr>
<tr>
<td>PHARM 251</td>
<td>Research in Pharmacology</td>
<td>2</td>
<td>S/U</td>
</tr>
<tr>
<td>PHARM 209</td>
<td>Intro to Research in Pharmacology</td>
<td>1</td>
<td>S/U</td>
</tr>
<tr>
<td></td>
<td>Biochemistry tutorial</td>
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#### Fall: Semester 2

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<th>Course Title</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDSP 211</td>
<td>General Principles</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 216</td>
<td>Gastrointestinal System</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 212</td>
<td>Cardiovascular System</td>
<td>2</td>
<td>letter grade</td>
</tr>
<tr>
<td>PHARM 221 or IDSP 111 (Biochemistry)</td>
<td>2 Credits</td>
<td>letter grade</td>
<td></td>
</tr>
<tr>
<td>PHARM 222 or IDSP 112 (Molecular Biology)</td>
<td>2 Credits</td>
<td>letter grade</td>
<td></td>
</tr>
<tr>
<td>PHARM 270, 271, or 272 (Journal Club)</td>
<td>1 Credit</td>
<td>S/U</td>
<td></td>
</tr>
<tr>
<td>PHARM 203</td>
<td>Methods in Pharmacology</td>
<td>3</td>
<td>letter grade</td>
</tr>
<tr>
<td>PHARM 298</td>
<td>Seminar in Pharmacology</td>
<td>1</td>
<td>S/U</td>
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#### Spring: Semester 3

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<tr>
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<th>Course Title</th>
<th>Credits</th>
<th>Grade</th>
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<tbody>
<tr>
<td>IDSP 213</td>
<td>Renal System</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 214</td>
<td>Respiratory System</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 217</td>
<td>Endocrine System</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>IDSP 218</td>
<td>Nervous System</td>
<td>2</td>
<td>letter grade</td>
</tr>
<tr>
<td>PHARM 258</td>
<td>Pharmacokinetics &amp; Pharmacodynamics</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>PHARM 260</td>
<td>Molecular Pharmacology</td>
<td>2</td>
<td>letter grade</td>
</tr>
<tr>
<td>PHARM 270, 271, or 272 (Journal Club)</td>
<td>1 Credit</td>
<td>S/U</td>
<td></td>
</tr>
<tr>
<td>PHARM 203</td>
<td>Methods in Pharmacology</td>
<td>3</td>
<td>letter grade</td>
</tr>
<tr>
<td>PHARM 298</td>
<td>Seminar in Pharmacology</td>
<td>1</td>
<td>S/U</td>
</tr>
</tbody>
</table>
VI. ANNUAL REPORT AND EVALUATION

The students’ progress will be evaluated annually by the faculty. The evaluation will be based on the Individual Development Plan (IDP), reports from the advisors, Research Advisory Committee Reports, grades in courses, and any other available information. Students must complete an Individual Development Plan (IDP) (forms are available from the Department of Pharmacology office) at the end of each spring semester, with the assistance of their mentors who contribute an evaluative paragraph. The student submits the IDP to the Department Head no later than June 30 of each year. A copy should be provided to the advisor and to the Graduate Program Director, who will place it in the student's file. Each student must meet with his/her committee shortly before submission of the IDP (spring semester meeting). If significant problems are identified in the Advisory Committee meeting, the Faculty may ask the student to meet with them for further evaluation. A decision will be made on the continuation of the student in the graduate program at the annual evaluation sessions. Feedback to the student, both positive and negative, will be given in the IDP by his/her advisor.

VII. QUALIFYING PROCESS

The qualifying process for students in the Department of Pharmacology, Toxicology and Neuroscience will be successful completion of the core curriculum and the Written and Oral Qualifying Examinations. As part of the process to qualify for the Ph.D. degree, the student must demonstrate that he/she is broadly competent in pharmacology. Although a student may be working in one area of pharmacology such as toxicology or neuropharmacology, he/she is expected to have a broad understanding of the concepts, experimental approaches, and major developments in all areas of pharmacology. To demonstrate this competence, the student must first pass the Written Qualifying Examination, and then the Oral Qualifying Examination.
**Written Qualifying Examination**

The Written Qualifying Examination will be taken after completion of the first-year core curriculum. The examination will be offered to all eligible students in the summer after their first year or thereafter as appropriate. Students will have approximately 2-3 weeks after the conclusion of summer semester classes to intensively prepare for the exams. During this time students will not be required to be in the laboratory.

The written exam will have a mix of required and optional questions. All prime departmental faculty will submit written questions for the examination, which will be compiled by a Qualifying Examination Committee appointed annually by the Department Head. The examination will be assembled by the Committee and reviewed for fairness and balance. Individual answers will be graded by at least two faculty members, including the one who submitted the question. Grades will be A, A-, B+, B, B-, C+, C-, C, D+, D or F. Following completion of this grading process, the Faculty will meet to consider whether the student has passed the Written Qualifying Examination. To pass the examination, students must obtain a mean score of B (3.0) or higher on the entire examination.

**Oral Qualifying Examination**

The purpose of the Oral Qualifying Examination is to demonstrate broad competence in pharmacology and specialized knowledge in the area of research that the student will pursue. The Oral Qualifying Examination Committee will be consist of five faculty composed of the following: the student's Major Advisor, two prime faculty of student’s choice, and two faculty chosen by the Department Head. The Department Head will serve as the moderator of the exam and will ensure that the exams cover the appropriate areas and are fair and balanced. Committee members will ask multiple general and in-depth questions of the student, with follow-up questions as appropriate. The student should prepare for this examination by asking faculty to suggest reading material that should be mastered for this examination. He/she should also review carefully any areas identified as weak in the Written Qualifying Examination, consulting appropriate faculty as necessary. Passing of the examination will be decided by a majority vote of the faculty present at the Examination.

*Failure of either oral or written examinations.* Students who fail the Written or Oral Qualifying Examination may be dismissed from the program, or may petition to repeat the examination. Failure of a second Written or Oral Qualifying Examination will result in dismissal of the student from the program. A student who fails has the option to apply for admission into the Master's program. Upon acceptance into the Master's Degree program, the student should provide written notification to the Office of Graduate Studies. The student must then complete any remaining coursework and then register for Master's Thesis credits. A Master's Degree will require research, a written Master's Thesis based on that research, and a successful defense of the thesis.

**VIII. PRELIMINARY EXAMINATION**

The Preliminary Examination is the defense of the Research Proposal. After passing the Written and Oral Qualifying Examinations, the student must prepare and submit a Research Proposal. The Research Proposal must then be defended orally before the Preliminary Examination Committee. The Preliminary Examination Committee must consist of at least five members of the Graduate Faculty of LSUHSC-S, at least one of which must have his/her primary appointment in a department other than Pharmacology, plus a faculty member from another institution who has expertise in the chosen area of research. The Department Head and the Dean of the Graduate School must approve requests for the Preliminary Examination. The student must complete and submit a Request for Preliminary...
Examination form to the Department Head for submission to the School of Graduate Studies not less than 21 days before the proposed date of the examination. A copy of the Research Proposal, and a notice of the proposed seminar, including the title, date, time, and place must accompany the Request form. Students who pass the Preliminary Examination are nominated to become a "Doctoral Candidate". A student becomes a "candidate" after approval by the Dean of the Graduate School.

Preparation and Defense of the Research Proposal (PHARM 299)

A major component of a training program is to train students for a research career. Integral to this is the preparation and presentation of a Research Proposal describing the details and rationale for the proposed research project. Preparation of the Proposal allows the student to become familiar with the published research in his/her chosen field, to learn how to prepare a research grant, and to focus on his/her major research aims and the rationale and methods to achieve these aims.

The Research Proposal is to be prepared after successful completion of the Qualifying Examination and should be completed within six months of it. For most students, the Dissertation Proposal will be completed during the second or third year of training. Students should consult with their advisors and Research Advisory Committee to determine the optimal timing. The Proposal will be written in the format of an NIH grant application. Students should familiarize themselves with the NIH grant application form. The submitted Dissertation Proposal should include all the major components of the proposal, including an Abstract, Narrative, a complete Budget and Budget Justification, as well as the Research Plan (and, if appropriate, justification for the use of Human Subjects or Animals). It should be prepared under the direction of the major professor with the advice of the student’s Research Advisory Committee. A copy of the proposal must be provided to each member of the Advisory Committee, and to the Graduate Program Director and the Department Head at least 21 days before the Defense. Students must complete the Grant Writing course (IDSP 235A) prior to writing their proposals.

For the Defense, the student will present a seminar open to all faculty, students and staff at LSUHSC-S describing the proposed research. The student in conjunction with the major advisor will be responsible for scheduling this seminar and for notifying all Departmental faculty, graduate students and postdoctoral research associates. The member of the Committee from outside LSUHSC must be present for this defense and prepare written comments on the strengths and weaknesses of the proposal. The defense will be chaired by the Graduate Program Director, or in the event that the Graduate Program Director is the student's major advisor, by the Department Head or designee. Following completion of the seminar, the Preliminary Examination Committee will question the student further in closed session. This Committee will decide whether or not the student passes the Preliminary Examination based on the quality of the written Research Proposal and its oral defense. Failure of the Preliminary Examination may mean dismissal from the program or require a second examination. In this event, the Committee will provide the student with written reasons for the failure and may suggest revisions for the Proposal. If the second defense of the written Research Proposal is not successful, the student will not be allowed to complete the Ph.D. degree, but may petition the faculty to be considered as a candidate for a Master's Degree. Upon acceptance into the Master's Degree program, the student should provide written notification to the Office of Graduate Studies. The student must then register for Master’s Thesis credits the following semester. A Master's Degree will require research, a written Master's Thesis based on that research, and a successful defense of the thesis.
IX. DOCTORAL DISSERTATION

Preparation and Defense of the Doctoral Dissertation

The dissertation research must be an original scholarly contribution to the field and is expected to contain original findings that address a fundamental question or questions. It is expected that the major findings of the study will be published in national or international peer-reviewed journals, and that the student will present his/her research findings at regional, national or international meetings of appropriate scientific societies.

The Dissertation is to be prepared by the student with the guidance and advice of his/her major professor and Research Advisory Committee. Before starting to write the dissertation, candidates must call a meeting of their Research Advisory Committee to review all the experimental results they plan to include in the dissertation to ensure that they are of adequate quality and quantity for a doctoral dissertation. Upon completion of the dissertation, the student should provide copies of the Dissertation to all members of his/her Advisory Committee, to the Department Head, and to the member of the committee from outside LSUHSC. After a minimum period of two weeks, the student should schedule a meeting of the Research Advisory Committee to determine whether the dissertation is adequate and sufficiently complete to allow scheduling of the Defense and Final Examination. If two or more members of the Research Advisory Committee feel that the dissertation is incomplete or inadequate to schedule the Defense, the Committee will make specific recommendations necessary to improve the dissertation.

The Request for Dissertation/Thesis Defense and Final Examination form, which nominates the Examining Committee, should be completed by the student and submitted to the Department Head. Because this request must be submitted to the Graduate School at least two weeks prior to the Defense date, the request must be submitted to the Department Head at least twenty-one days before the date of the proposed defense. Graduate School procedures require that notice of the Final Defense Seminar be distributed by the Major Professor to the Graduate Faculty of LSUHSC announcing the seminar title, and the time, date, and location, at least one week before the presentation.

Prior to the Final Examination the student will be required to present a research seminar open to all faculty, students, and staff. The purpose of this seminar is to allow the student to present an overview of the completed research and to demonstrate that the research is of high enough quality to merit a doctoral degree. An announcement of the seminar must be sent to all Department Faculty, postdoctoral fellows, and students at least one week before the seminar.

Timetable for the submission of a Ph.D. dissertation:

1. Six to eight weeks before the proposed date of the defense and final examination, the student must provide copies of the complete dissertation to each member of his/her Research Advisory Committee and to the Department Head.

2. A meeting of the Research Advisory Committee must be scheduled to review the dissertation and to determine whether it is of sufficient quality to be submitted to the School of Graduate Studies.

3. The Request for Dissertation/Thesis Defense and Final Examination form must be completed and submitted along with a copy of the dissertation to the Department Head, at least 21 days before the proposed date of the Defense. This request includes the date, time and place for the presentation.
The time must be scheduled early enough during the day to allow enough time for a full examination.

4. If approved, the Department Head will submit the Examination Request form to the School of Graduate Studies not less than 14 days before the proposed Defense.

5. Once approved by the School of Graduate Studies, the student must ensure that a notice of the seminar, which includes a 250 word abstract about the dissertation research that will be presented, is distributed to all faculty, students and postdocs in the Department of Pharmacology, Toxicology and Neuroscience and other interested faculty, students and postdocs.

The Dissertation Defense and Final Examination will focus on the dissertation research and the Dissertation itself. The student will be expected to answer questions about the work, defend the validity of the conclusions, and discuss suggestions for revisions to correct errors or to improve clarity. At the discretion of the Research Advisory Committee, the Defense and Final Examination may include general questions in pharmacology.

After the student has answered questions about the Dissertation, the Committee will discuss the Dissertation and revisions that may be necessary and vote whether the student has passed the Final Examination. Voting to accept the dissertation (with all recommended revisions) will be by ballot with no more than one negative vote permitted. If the dissertation is not acceptable and/or the student is judged to have failed the examination, the Examining Committee will inform the student in writing of the reasons for the failure, with a copy of this letter provided to the Department Head and the Dean of Graduate Studies. The Advisory Committee may vote to schedule a second Final Examination if major revisions and/or additional experimentation are required. In this case, the student is to be informed in writing of the deficiencies and of the work that must be accomplished before a second Defense and Final Examination may be scheduled. This information must be included in the letter given to the Head of the Department and the Dean of Graduate Studies.

When the student has passed his Defense and Final Examination he/she will be certified to the Graduate Faculty, the Graduate School Dean and the Chancellor as having met all requirements for the degree of Doctor of Philosophy in Pharmacology, Toxicology and Neuroscience. Students are responsible for other incidental fees such as the costs of their dissertation binding, diploma costs, and other expenditures that are not covered by tuition unless payment is otherwise arranged by their advisors.

X. TEACHING

Teaching is an important aspect of the doctoral training program, and all students are required to participate in the teaching responsibilities of the Department. This may take the form of assisting in the teaching of medical and graduate student courses including small sessions, such as the Patient-Oriented Problem-Solving (POPS), in teaching the Allied Health students, participating in the training of new students in the laboratory, presenting quality topical seminars, and other such activities.

XI. OTHER SCHOLARLY ACTIVITIES

In addition to requirements concerning research, course work, and seminar, every graduate student is expected to participate in other scholarly activities. These activities will vary, but students are expected to participate in journal clubs, to keep abreast of major developments in their field and in related biomedical sciences, to present their research findings at meetings of professional societies in
their field, to assist other students and staff in research techniques and in the use and maintenance of instrumentation, to help in the recruitment of graduate students into the program, to assist in teaching when asked, and to take an active role in maintaining the research environment of the Department and the University. It is expected that every doctoral candidate will publish at least one first-author paper on the findings from his/her dissertation research in a national/international journal. All students are expected to attend all guest seminars and guest lectures in graduate courses by faculty visiting the Department.

**XII. SERVICE**

Students are expected to participate and assist with departmental functions during each academic year. In addition, students are expected to serve on departmental, graduate/medical school, or scientific society committees at some point in their graduate careers. At LSUHSC-S, we are in a unique position to provide the larger community with information and resources about health-related issues. We are the only medical school in an approximately 250-mile radius, and our location in the Arkansas-Louisiana-Texas (Ark-La-Tex) tri-state region means that we can provide educational opportunities and serve as a resource for a largely rural area. Students are encouraged to participate in community outreach activities as appropriate and in consultation with their advisor.

**MD/PH.D. CURRICULUM**

Before entering the Ph.D. portion of the program, M.D./Ph.D. students must pass both the Year 1 and Year 2 Medical School curricula with a cumulative GPA of 3.0, and also must pass Step 1 of the United States Medical Licensing Exam (USMLE). The Department of Pharmacology, Toxicology and Neuroscience will waive the standard Ph.D. requirements for Biochemistry and Molecular and Cell Biology (IDSP 111-113) and the Foundations of Biomedical Sciences (IDSP 211-219) because of the overlap in content with the Medical School curriculum. All other requirements of the Ph.D. program apply.

M.D./Ph.D. students may opt to do research in a departmental laboratory during the 6-week break from medical school classes at the end of Year 1, or the summer before entering medical school. For each summer research experience in the department, one semester (3 credits) of a required PHARM 203 (Methods in Pharmacology) rotation will be waived.

The core curriculum for M.D./Ph.D. students will be:

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Listing</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Methods in Pharmacology (Research Rotations)</td>
<td>PHARM 203</td>
<td>6-9 (3 each semester)</td>
</tr>
<tr>
<td>2) Introduction to Research in Pharmacology</td>
<td>PHARM 209</td>
<td>S/U 1</td>
</tr>
<tr>
<td>3) Basic Statistics</td>
<td>IDSP 226</td>
<td>letter grade 1</td>
</tr>
<tr>
<td>4) Advanced Statistics</td>
<td>IDSP 227</td>
<td>letter grade 1</td>
</tr>
<tr>
<td>5) Pharmacokinetics and Pharmacodynamics</td>
<td>PHARM 258</td>
<td>letter grade 1</td>
</tr>
<tr>
<td>6) Molecular Pharmacology</td>
<td>PHARM 260</td>
<td>letter grade 2</td>
</tr>
</tbody>
</table>
7) Neuropharmacology PHARM 233 letter grade 2
7) Toxicology PHARM 245 letter grade 2
8) Journal Club PHARM 270, 271 or 272 (1 each semester in first and second years) S/U 4
9) Pharmacology Seminar PHARM 298 S/U 4+
10) Grant Writing IDSP 235A S/U 1
11) Philosophical and Ethical Issues in Science IDSP 240 S/U 1
12) Research Proposal in Pharmacology PHARM 299 S/U 3
13) Dissertation Research PHARM 400 letter grade 1-9
14) Two advanced electives

Note that to satisfy Graduate School requirements, each M.D./Ph.D. student must complete, with a passing grade, a minimum of 32 total credit hours, and that 20 hours of these credits must be letter-graded. Thus, the students will need to work together with the Graduate Program Director and their Research Advisory Committees to make sure that these requirements are met.

MASTER'S PROGRAM IN BIOMEDICAL SCIENCE

PROGRAM OF STUDY:

The School of Graduate Studies at the Louisiana State University Health Sciences Center in Shreveport administers a graduate program leading to the M.S. Degree in Biomedical Sciences. A minimum of 17 hours of letter grade credit is required with the coursework tailored to the student's individual needs, determined by his/her Advisory Committee. At least six credit hours must be Thesis Research performed in the Department of Pharmacology, Toxicology and Neuroscience at LSUHSC-S. A minimum total of 30 credit hours are required for the Master's Degree. Please note LSUHSC-S Graduate School and Department of Pharmacology, Toxicology, and Neuroscience policy states that a student must complete his/her Master's Degree within four years or one-year after a switch is made from the Ph.D. program, whichever is longer.

ADMISSION REQUIREMENTS:

1. A baccalaureate degree from a college or university approved by a regional accrediting agency. An official copy of each transcript should be sent directly from the Registrar of each college or university that the student has attended (including the various institutions within the LSU system) to the School of Graduate Studies at LSUHSC-S.

2. An undergraduate grade point average of 2.5 on a 4-point scale and 3.0 grade point average for previous graduate work.

3. Satisfactory scores on all three portions of the Graduate Record Exam (GRE). A minimum combined Verbal and Quantitative score of 300 is required. These scores should be sent directly to the School of Graduate Studies at LSUHSC-S by the Educational Testing Service.
4. Applicants must have successfully completed one year of general chemistry and one year of a biological science and at least one course in organic chemistry. Successful completion of a course in biochemistry and an upper level biology course are strongly recommended.

5. Applicants not from an English-speaking country must achieve a score of 550 (paper) or 213 (computer) or better on the Test of English as a Foreign Language (TOEFL) examination.

6. Letters of recommendation from three former or current professors should be sent to the School of Graduate Studies at LSUHSC-S.

FINANCIAL SUPPORT:

Master's Degree students do not receive financial support for their Thesis Research from the LSUHSC-S Department of Pharmacology, Toxicology and Neuroscience. During the time that the student is enrolled in Thesis Research, he/she must be enrolled as a full-time student and is therefore not eligible for full-time employment in the LSU system. The student may be employed either part-time within the LSU system or full- or part-time elsewhere. If employed within the LSU system, work performed under employment may not be part of the research work for the Master's Degree. For international students, VISA regulations will limit your employment to 20 hours per week, and your employment must be conducted within the LSU system.

TUITION:

Tuition and non-resident fees for LSUHSC-S are waived for M.S. students.

HEALTH INSURANCE AND ACTIVITY FEE:

The School of Graduate Studies requires all students to be responsible for the payment of the University Activity Fee and to purchase Health Insurance or provide evidence of other health care coverage. Students are also responsible for other incidental fees such as the costs of their thesis binding, diploma costs, and other expenditures that are not covered by tuition.

EXIT PROCEDURES:

Graduate Students must follow the same exit procedures as any other employee. Human Resources Management requires a resignation letter, Employee Clearance Form, and Separation Summary. Turning in keys, ID Badge, and CopyMate card are part of the exit procedures. The student's advisor will be responsible for ensuring that exit procedures are completed appropriately. Please consult the Business Manager for more details on the Exit Procedure.

REQUIREMENTS FOR THE MASTERS DEGREE:

I. COURSE WORK
A minimum of 24 class hours is required, plus at least 6 research hours. Courses to be taken are those required plus those determined by the student's Advisory Committee. Course descriptions can be found in the Ph.D. section of the handbook.
Required Courses:

- IDSP 211  Foundations of Biomedical Sciences I - General Principles (1 credit)
- IDSP 240  Philosophical & Ethical Issues in Science (1 credit)
- PHARM 209  Introduction to Research in Pharmacology (1 credit)
- PHARM 258  Pharmacokinetics & Pharmacodynamics (1 credit)
- PHARM 260  Molecular Pharmacology (2 credits)
- PHARM 300  Thesis Research (6 credits)

Plus at least 7 credit hours from the following:

- IDSP 212  Foundations of Biomedical Sciences I - Cardiovascular System (2 credits)
- IDSP 213  Foundations of Biomedical Sciences I - The Renal System (1 credit)
- IDSP 214  Foundations of Biomedical Sciences I - Respiratory System (1 credit)
- IDSP 216  Foundations of Biomedical Sciences II - Gastrointestinal System (1 credit)
- IDSP 217  Foundations of Biomedical Sciences II - Endocrine System (1 credit)
- IDSP 218  Foundations of Biomedical Sciences II - Nervous System (2 credits)
- IDSP 219  Foundations of Biomedical Sciences II - Inflammation and Infection (1 credit)

Highly Recommended Courses:

- Biochemistry and Molecular and Cell Biology. Students who wish to enter the Ph.D. program after completion of the M.S. will need to take IDSP 111 and 112 OR PHARM 221, 222, and 223 (Biochemistry and Molecular Biology classes).

- PHARM 221  Advanced Topics in Pharmacology: Biochemistry (2 credits)
- PHARM 222  Advanced Topics in Pharmacology: Molecular Biology (2 credits)

OR

- IDSP 111  Basic Biochemistry and Molecular and Cell Biology I (2 credits)
- IDSP 112  Basic Biochemistry and Molecular and Cell Biology II (2 credits)

Neuropharmacology or Toxicology. It is recommended that students consult with the Graduate Program Director and/or their Research Advisory Committee and take one of the following:

- PHARM 233  Neuropharmacology (2 credits)
- PHARM 245  Toxicology (2 credits)
Optional Courses:
IDSP 235A  Grant Writing (1 credit)
PHARM 220  Clinical Toxicology (1 credit)
PHARM 204  BRAIN (Brain Research through Advanced and Innovative Neurotechnologies) (1 credit)
PHARM 225  Advanced Topics in Pharmacology (1-5 credits)
PHARM 238  Cardiovascular Pharmacology (2 credits)
PHARM 240  Behavioral Pharmacology I (1 credit)
PHARM 242  Pharmacology of Drugs of Abuse (1 credits)
PHARM 243  Environmental Toxicology (2 credits)
IDSP 226  Introductory Biostatistics (1 credit)
IDSP 230  Advances in Gene Therapy (1 credit)
IDSP 250A&B Current Trends in Toxicology (1 credit)

Journal Club:
Students must attend journal club and prepare at least one presentation per semester. Students need not register for the journal club course, but must participate appropriately.

PHARM 270  Discussions in Neurochemistry and Neuropharmacology (1 credit)
PHARM 271  Discussions in Toxicology (1 credit)
PHARM 272  Discussions in Pharmacology (1 credit)

Seminar:
Seminar is the one occasion on which all faculty, postdoctoral researchers, and graduate students meet regularly to discuss research findings and new developments in pharmacology. M.S. students will not be required to register for the seminar course, but must participate in seminar just as Ph.D. students.

PHARM 298  Seminar in Pharmacology (1 credit)
Oral presentations of research data
Faculty member in charge: Yunfeng Zhao Ph.D.

In the spring semester of the first year, students will present a brief (15 minute) seminar based on the poster the student will present at Graduate Research Day. It should be delivered in a critical and informative manner such that the audience can appreciate the state of the art of the research. The student is expected to read a considerable body of literature so that he/she has a good understanding of the field and the techniques and experimental approaches being used to address the key questions. In the fall semester of the second year, students will present a 25 minute seminar based on the research being conducted in their resident laboratory. The talk is expected to cover research related to the student’s anticipated project. In the spring semester of the second year, the student will present a full seminar (45-50 minutes) that will consist of background, methodological information and data collected thus far. This type of seminar will be repeated in the third year as needed. The Defense of the Master’s Thesis will substitute for the yearly seminar as appropriate.

Students are encouraged to use computer-based presentations using such software applications as Microsoft PowerPoint. Slides should be prepared carefully, as for a professional presentation. The student is encouraged to practice the seminar with a senior student and/or
his/her advisor. One week prior to the seminar, the student must provide the Departmental staff with an approved abstract that will then be distributed to all faculty, postdoctoral trainees, and graduate students in the Department. The abstract should give the date, time and place of the seminar and present a summary of the seminar topic.

**Attendance at Departmental seminars and at seminars given by visitors to the Department is mandatory.** Every student is expected to attend every seminar, and students are expected to participate actively in seminar by contributing to the discussion. Students who are registered for the course are required to participate actively in seminar by contributing to the discussion or by writing a short seminar summary for speakers that are from outside of LSUHSC-S. Summaries must be turned into the Seminar Coordinator within 7 days of the seminar or a grade of "U" will be given for the course.

**II. THESIS RESEARCH**

1. Selection of research project and research advisor.

The Research component of the Master's Degree program will consist of laboratory research performed by the student. The student may elect to perform the research in the laboratory of any particular faculty member in the Department provided that the faculty member is prepared to accommodate the student. The research advisor must be a member of the Graduate Faculty at LSUHSC-S and have a full-time or joint faculty appointment in the Department of Pharmacology, Toxicology and Neuroscience. Selection of the research project and research advisor may be made in one of two ways:

a. If a student has previous experience in the laboratory of a faculty member he/she may elect to complete the Master's Degree research in this laboratory. In this case, this faculty member would become the student's research advisor.

b. The student may elect to complete short (8 week) rotations in the laboratories of up to three different faculty members in order to gain experience in various research projects. The student will then choose one faculty member as the research advisor and complete the Master's Degree research in his/her laboratory. The research advisor should be selected by the end of the first semester or the middle of the second semester of studies at the latest.

2. The Advisory Committee

The Advisory Committee will consist of at least three members of the LSUHSC-S Graduate Faculty: the research advisor, one faculty member from LSUHSC-S Department of Pharmacology, Toxicology and Neuroscience and one graduate faculty member from another department at LSUHSC-S. The student in consultation with the research advisor will select the other two committee members. The Committee must be approved by the Head of the Department of Pharmacology and the Dean of the School of Graduate Studies. The Committee should be selected within the first year of study. At least one meeting of the student with the Advisory Committee should be held during the time that Thesis Research is being performed.
III. THE M.S. PROGRAM AT A GLANCE

A typical schedule of courses for a Masters degree in Biomedical Sciences from the Department of Pharmacology, Toxicology and Neuroscience is presented below. We have provided the information in checklist form, so that the student can better prepare for registration. Note that this is merely an example of coursework that might be taken in the first 1-2 years of study. The bulk of the coursework that the student will take will likely be completed within the first 1-1.5 years of study. Also note that students must register for 6 h in summer and 9 h in fall and spring to be classified as a full-time student.

M.S. Degree Course Requirements Check List

Summer: Semester 1

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHARM 203</td>
<td>Methods in Pharmacology</td>
<td>2-3</td>
<td>letter grade</td>
</tr>
<tr>
<td>PHARM 209</td>
<td>Intro to Research in Pharmacology</td>
<td>1</td>
<td>S/U</td>
</tr>
<tr>
<td>PHARM 251</td>
<td>Research in Pharmacology</td>
<td>1-8</td>
<td>S/U</td>
</tr>
<tr>
<td>Biochemistry tutorial</td>
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Fall: Semester 2

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDSP 211</td>
<td>General Principles</td>
<td>1</td>
<td>letter grade</td>
</tr>
<tr>
<td>PHARM 270, 271 or 272</td>
<td>(Journal Club)</td>
<td>1</td>
<td>S/U</td>
</tr>
<tr>
<td>PHARM 203</td>
<td>Methods in Pharmacology</td>
<td>2-4</td>
<td>letter grade</td>
</tr>
<tr>
<td>PHARM 298</td>
<td>Seminar in Pharmacology</td>
<td>1</td>
<td>S/U</td>
</tr>
</tbody>
</table>

Choose from:

| Course | Title | Credits | Grade | |
|--------|-------|---------|-------|
| IDSP 216 | Gastrointestinal System | 1 | letter grade |
| IDSP 212 | Cardiovascular System | 2 | letter grade |
| PHARM 221 or IDSP 111 | (Biochemistry) | 2 | letter grade |
| PHARM 222 or IDSP 112 | (Molecular Biology) | 2 | letter grade |

Spring: Semester 3

| Course | Title | Credits | Grade | |
|--------|-------|---------|-------|
| PHARM 258 | Pharmacokinetics & Pharmacodynamics | 1 | letter grade |
| PHARM 260 | Molecular Pharmacology | 2 | letter grade |
| PHARM 270, 271 or 272 | (Journal Club) | 1 | S/U |
| PHARM 203 | Methods in Pharmacology | 2-4 | letter grade |
| PHARM 298 | Seminar in Pharmacology | 1 | S/U |

Choose from:

| Course | Title | Credits | Grade | |
|--------|-------|---------|-------|
| IDSP 213 | Renal System | 1 | letter grade |
| IDSP 214 | Respiratory System | 1 | letter grade |
| IDSP 217 | Endocrine System | 1 | letter grade |
| IDSP 218 | Nervous System | 2 | letter grade |
Summer: Semester 4

IDSP 240  *Philosophical and Ethical Issues in Science*  1 Credit  S/U  _____

PHARM 251  *Research in Pharmacology*  1-8 Credits  S/U  _____

The student may choose:

IDSP 219  *Inflammation and Infection*  1 Credit  letter grade  _____

Fall: Semester 5

PHARM 233 or 245  *Neuropharmacology or Toxicology*  2 Credits  letter grade  _____

PHARM 270, 271 or 272  (Journal Club)  1 Credit  S/U  _____

PHARM 298  *Seminar in Pharmacology*  1 Credit  S/U  _____

PHARM 300  *Thesis Research*  1-9 Credits  S/U  _____

Spring: Semester 6

PHARM 270, 271 or 272  (Journal Club)  1 Credit  S/U  _____

PHARM 298  *Seminar in Pharmacology*  1 Credit  S/U  _____

PHARM 300  *Thesis Research*  1-9 Credits  S/U  _____

Choose from electives offered  2 or more credits

**IV. THESIS DEFENSE**

Based on his/her laboratory research, the student will write a thesis and present a public oral defense of the thesis to members of the Department of Pharmacology of LSUHSC-S.

**Preparation and Defense of the Master's Thesis**

The Master's Thesis research must be an original scholarly contribution to the field and is expected to contain original findings that address a fundamental question or questions. The thesis is to be prepared by the student with the guidance and advice of his/her major professor and Research Advisory Committee. Before starting to write the thesis, candidates should call a meeting of their Research Advisory Committee to review all the experimental results they plan to include in the thesis to ensure that they are of adequate quality and quantity. Upon completion of the thesis, the student should provide copies of the thesis to all members of his/her Advisory Committee and the Department Head. After a minimum period of two weeks, the student should schedule a meeting of the Research Advisory Committee to determine whether the thesis is adequate and sufficiently complete to allow scheduling of the Defense. If one or more members of the Research Advisory Committee feel that the thesis is incomplete or inadequate to schedule the Defense, the Committee will make specific recommendations necessary to improve the thesis.

The *Request for Dissertation/Thesis Defense and Final Examination* form, which nominates the Examining Committee, should be completed by the student and submitted to the Department Head. Because this request must be submitted to the Graduate School at least two weeks prior to the Defense date, the request must be submitted to the Department Head at least twenty-one days before the date of the proposed defense. Graduate School procedures require that notice of the Final Defense Seminar be distributed by the Major Professor to the Graduate Faculty of LSUHSC-S announcing the seminar title, and the time, date, and location, at least one week before the presentation.
Prior to the Final Examination the student will be required to present a research seminar open to all faculty, students, and staff. The purpose of this seminar is to allow the student to present an overview of the completed research and to demonstrate that the research is of high enough quality to merit a Master's degree. An announcement of the seminar must be sent to all Department Faculty, postdoctoral fellows, and students at least one week before the seminar.

**Timetable for the submission of a Master's Thesis**

1. Four to six weeks before the proposed date of the defense and final examination, the student should provide copies of a detailed thesis outline or a draft of the completed thesis to each member of his/her Research Advisory Committee and to the Department Head.

2. A meeting of the Research Advisory Committee must be scheduled to review the thesis and to determine whether it is of sufficient quality to be submitted to the School of Graduate Studies.

3. The *Request for Dissertation/Thesis Defense and Final Examination* form must be completed and submitted along with a copy of the full and completed thesis to the Department Head, at least 21 days before the proposed date of the Defense. This request includes the date, time and place for the presentation. The time must be scheduled early enough during the day to allow enough time for a full examination.

4. If approved, the Department Head will submit the Examination Request form to the School of Graduate Studies not less than 14 days before the proposed Defense.

5. Once approved by the School of Graduate Studies, the student must ensure that a notice of the seminar, which includes a 250 word abstract about the thesis research that will be presented, is distributed to all faculty, students and postdocs in the Department of Pharmacology, Toxicology and Neuroscience and other interested faculty, students and postdocs.

The Thesis Defense and Final Examination will focus on the thesis research and the thesis itself. The student will be expected to answer questions about the work, defend the validity of the conclusions, and discuss suggestions for revisions to correct errors or to improve clarity. At the discretion of the Research Advisory Committee, the Defense and Final Examination may include general questions in pharmacology.

After the student has answered questions about the thesis, the Committee will discuss the thesis and revisions that may be necessary and vote whether or not the student has passed the Final Examination. Voting to accept the thesis (with all recommended revisions) will be by ballot with no more than one negative vote permitted. If the thesis is not acceptable and/or the student is judged to have failed the examination, the Examining Committee will inform the student in writing of the reasons for the failure, with a copy of this letter provided to the Department Head and the Dean of Graduate Studies. The Advisory Committee may vote to schedule a second Final Examination if major revisions and/or additional experimentation are required. In this case, the student is to be informed in writing of the deficiencies and of the work that must be accomplished before a second Defense and Final Examination may be scheduled. This information must be included in the letter given to the Head of the Department and the Dean of Graduate Studies.
AWARDING OF THE MASTER'S DEGREE

When the student has passed his Defense and Final Examination he/she will be certified to the Graduate Faculty, the Graduate School Dean and Chancellor as having met all requirements for the degree of Master's Degree in Biomedical Science. The Master of Science Degree will be thus awarded by LSUHSC-S. Students are responsible for other incidental fees such as the costs of their thesis binding, diploma costs, and other expenditures that are not covered by tuition unless payment is otherwise arranged by their advisor.
RESEARCH CORE FACILITY

The LSUHSC Research Core Facility (RCF) provides LSUHSC-S investigators with ready access to the latest state-of-the-art biotechnologies for use in scientific research. Depending on the nature and scope of their research projects, students using the RCF will have the opportunity to gain experience and training in some of the newest and most powerful methodologies currently available biomedical research.

The RCF is located on the sixth floor of the Biomedical Research Institute (BRI) building and currently contains instrumentation for nine separate technologies: Microscopy, Flow Cytometry, Real Time PCR, DNA Array, DNA sequencing, Laser Capture Microdissection, High Throughput/High Content Cellular Screening, Mass Spectrometry, and Small Animal Imaging. Each instrument is operated by a trained Research Associate and overseen by an LSUHSC-S faculty member. These advisors constitute the Scientific Advisory Board (SAB), the current membership of which is Robert Chervenak (Chair), Rona Scott, Felicity Gavins, Martin Muggeridge, Nick Goeders, Chris Kevil, and Jim Cardelli. Deborah Chervenak is Manager of the RCF laboratories.

MICROSCOPY

Zeiss Multi-Photon System

The Zeiss LSM 510 NLO system is configured to enhance living tissue research. The ultrafast pulsed laser emitting NIR radiation allows imaging up to 500 μm deep within tissue. Three of the objectives are optimized for NIR and are the water dipping type to be used without a coverslip. The LSM 5 operating software includes the Physiology v3.5 and Image Visart v3.5 options that permit 2D, 3D, and 4D image collection and processing, 3D/4D animation, calibration and measurement of ion concentrations, time series analysis, and graphical mean-of-ROI analysis. There are three PMTs for visible wavelength detection, a transmitted light detector, and two non-descanned detectors for multiphoton imaging. It is equipped with the following lasers and laser lines (in parentheses) for excitation:

- Argon (458, 477, 488, 514 nm)
- HeNe (543 nm)
- HeNe (633 nm)
- Coherent Chameleon-XR Ti:Sapphire laser (tunable from 705 through 980 nm)

The Zeiss LSM 510 NLO is connected to an upright Axioskop 2 FS MOT microscope with a set of objectives selected for physiological measurements and live animal studies which include the following: Fluar 5x/0.25 WD=12.5 (to be used with a coverslip), LCI Plan Neofluar 25x/0.8 DIC (to be used with a coverslip, both glycerol and water immersion), Achroplan 20x/0.5 WD=1.9( to be used without a coverslip), Achroplan 40x/0.8 IR WD=3.6 (to be used without a coverslip), and Achroplan 63x/0.9 IR WD=2.0 (to be used without a coverslip). The stage remains in a fixed position, and the objectives have motorized focus control.

Scientific Advisor: Dr. Martin Muggeridge
**Leica TCS SP5 Spectral Confocal Microscope**

This is a very flexible and fast confocal system for fixed or living samples. The system is built with a Leica DMI 6000 CS inverted, fully automated microscope with motorized stage, condenser, objective and filter turrets. The microscope is housed in a Ludin full enclosure incubator with an internal Ludin Cube2 with CO₂, O₂ and humidity control. It is equipped with 5 lasers: blue diode (405nm), multi-line argon (458,476,488,496,514nm), green HeNe (543nm), orange HeNe (594nm), and red HeNe (633nm). The spectral beam splitter has freely adjustable bandwidths for the collection of signal in 5 separate detectors simultaneously or sequentially. There is also a transmitted light detector for DIC. There are 9 available objectives, from a 2.5x through a plan apo 100x/1.46NA oil objective. The system runs on the newest version of LAS AF software, with FRAP, FRET, Mark & Find, 3D Visualization, Colocalization, and Live Data Mode.

Scientific Advisor: Dr. Martin Muggeridge

**Zeiss Widefield/Apotome Microscope**

The system is built with a Zeiss Axio Observer Z1 inverted fluorescent microscope, fully automated with component recognition to minimize errors. System components include mercury arc lamp excitation, a Zeiss AxioCamMRm CCD camera with 12-bit dynamic range and extended sensitivity in the near infrared, fully automated xyz stage, a complement of objectives from a 10x through 100x, 5 installed filter sets for DAPI, FITC, narrow band GFP, Rhodamine, and far red. The Apotome attachment is designed for precise optical sectioning. The Apotome slides easily into the optical path and projects a grid onto the image plane, which is shifted laterally in three defined steps with an image collected at each step. A software algorithm then removes out-of-focus signal. The acquisition software is Axio Vision v.4.6, including plug-in options for Inside 4D, 3D Deconvolution, Colocalization, Mark&Find, Mosaic, and more.

Scientific Advisor: Dr. Martin Muggeridge

**Nikon Widefield Microscopy**

The system is built around a Nikon Eclipse TE300 inverted microscope with a range of objectives for phase, DIC, and high resolution epi-fluorescent imaging. Software packages control a Prior Optiscan™ xyz stage with a full complement of stage inserts and a Prior filter wheel containing excitation filters from the Chroma 83000 filter set. This set includes single and multiband excitation filters for DAPI, FITC, GFP, Texas Red, Rhodamine, or PI. Images are acquired with a Roper Scientific CoolSNAP™ monochrome CCD camera with 12-bit dynamic range, especially designed for low-light applications. High resolution color images may also be acquired with the addition of the CRI Micro*Color™ filter module. The stage, filters, shutters, and camera are controlled with the user’s choice of two software packages: IPLab v3.7 for Windows (Scanalytics) or Metavue v6.3 for Windows (Molecular Devices). Additional image processing and analysis software is available on an offline computer. The software suite includes Metamorph Premier Offline v6.3, IPLab v3.7, Adobe Photoshop, ImageJ, LaserSharp v6.0, and Zeiss LSM Image Browser 3.5.

Scientific Advisor: Dr. Martin Muggeridge
LASER CAPTURE MICRODISSECTION

Arcturus XT System

Major scientific and medical advances are transforming the field of translational laboratory research. Developments in gene sequencing and amplification techniques, among others, now allow investigators to extract DNA or RNA from tissue biopsies and cytological smears for pinpoint molecular analysis. The efficacy of these sophisticated genetic testing methods, however, depends on the purity and precision of the cell populations being analyzed. Simply homogenizing the biopsy sample results in an impure combination of healthy and diseased tissue. Using mechanical tools to manually separate cells of interest from the histologic section is time-consuming and extremely labor-intensive. None of these methods offers the ease, precision and efficiency necessary for modern molecular diagnosis. A new method, Laser Capture Microdissection (LCM), provides research and pathology laboratories with the ideal microdissection technology. LCM was conceived and first developed as a prototype research tool at the National Institute of Child Health and Human Development (NICHD) and the National Cancer Institute (NCI) of the NIH. LCM is being used in the Cancer Genome Anatomy Program (CGAP) to catalog the development of cells from a normal to a diseased state. It can be applied to any disease process which is accessible through tissue sampling, such as premalignant cancer lesions, multiple sclerosis, arteriosclerosis, and Alzheimer's disease. Research applications include: genomics (differential gene profiling, loss of heterozygosity, microsatellite instability, and gene quantification) and proteomics (two-dimensional protein gels, western blotting, and immuno-quantification of proteins). The Arcturus XT® instrument performs Laser Capture Microdissection from heterogeneous tissue samples simply, quickly, and precisely. In minutes the investigator can locate a single cell or large groups of cells and, using a simple aim-and-shoot method, extract them for subsequent molecular analysis. LCM preserves the exact morphologies of both the captured cells and the surrounding tissue. The Arcturus XT transfers cells from paraffin-embedded and frozen tissue sample stained slides. The entire process can be monitored and documented, and the images stored in an archiving workstation.

Scientific Advisor: Dr. Rona Scott

DNA ARRAY

Affymetrix System

The Research Core Facility is equipped with a state-of-the-art Affymetrix GeneChip Instrument System. This system consists of the following components:

1. A GeneChip Hybridization Oven 640 for automated control of hybridization to the GeneChip arrays.
2. A GeneChip Fluidics Station for automated washing of chips and labeling of hybridized probes. This station can wash and stain four arrays simultaneously.
3. A GeneChip Scanner 3000 7G for obtaining high-resolution images of hybridization signals.
4. A GeneChip Workstation that controls the operation of the system, data collection, and processing of initial raw data.
5. A bioinformatics system, including a GCOS server, Command Console, Spotfire, GeneSifter, and Ingenuity Pathway Analysis.

This system is suitable for global gene expression studies using the Affymetrix GeneChip Probe
arrays. Oligonucleotide arrays, prepared on glass, are hybridized to biotinylated probes prepared from biological samples and detected with a fluorescent label. Probes for these experiments are derived from a single source, and differentially expressed genes are identified by comparing the results of experiments performed with different chips. A major advantage of this approach is the ready availability of pre-prepared arrays representing a large number of sequences from a number of species.

Scientific Advisor: Dr. Rona Scott

Microarray Slide Scanner

The Research Core Facility has a GenePix 4000B microarray scanner from Axon Instruments capable of acquiring and analyzing expression data from DNA microarrays, protein microarrays, tissue arrays, and cell arrays. Unlike most commercially available microarray scanners, the GenePix 4000B scanner acquires data at two wavelengths simultaneously, 532 nm and 635 nm, greatly reducing scan time. Accepting standard microscope slides (1” x 3”), it acquires data at resolutions between 5 and 100 μm. Other features include a user-selectable focus position, user-selectable laser power, a dynamic detection range of four orders of magnitude, and a line averaging mode for extra-high signal-to-noise ratios. The system is fully integrated with GenePix Pro software. Acuity 4.0 is also available for analysis and visualization of multi-platform array data.

Scientific Advisor: Dr. Rona Scott

NEXT-GENERATION SEQUENCING

Illumina MiSeq System

The Illumina Miseq is a next-generation DNA sequencer with a single-lane flow cell. It is capable of generating up to 25 million reads with up to 15GB of output in a single run. It can produce 2 x 300 paired end reads. It has the output to accommodate targeted gene sequencing, metagenomics, small genome sequencing, targeted gene expression and amplicon sequencing. Sample libraries are loaded directly onto the MiSeq where amplified clusters are generated on the flow cell, followed by sequencing by synthesis. Samples can be barcoded and multiplexed or pooled together in the same lane.

Scientific Advisor: Dr. Rona Scott

Illumina NextSeq 500

The NextSeq 500 is a more flexible system than the MiSeq, enabling the analysis of transcriptomes, exomes and whole genomes. It is capable of generating up to 120 Gb of output with 400 M sequencing reads and up to 2 x 150 bp read lengths.

Scientific Advisor: Dr. Rona Scott

FLOW CYTOMETRY
There are four instruments that make up the flow cytometry component of the RCF.

**FACSAria IIIu Cell Sorter**

The FACSAria cell sorter is capable of 17-parameter (Forward Scatter, Side Scatter, and 15 fluorescence detectors) analysis and cell sorting. It has 4 solid state lasers for excitation at 406 nm, 488 nm, 561 nm and 633 nm wavelengths. This is a digital high speed sorter, capable of sorting up to 70,000 events per second. It is capable of standard “bulk” sorting of up to 4 user-defined cell populations simultaneously, or can be used for direct deposition of a counted number of cells directly into tissue culture plates for cloning, frequency response assays, or other single cell analyses. This instrument uses BD Biosciences FacsDiva software for acquisition and analysis.

Scientific Advisor: Dr. Robert Chervenak

**FACSCalibur**

The FACSCalibur is an ultra sensitive flow cytometer, capable of 6-parameter (two laser light scatter and up to four fluorescent colors) analysis. It uses two lasers for fluorochrome excitation: a) an argon ion laser for 488-nm excitation; and b) a Red Diode laser for 635-nm excitation. This instrument uses CellQuest software for acquisition and analysis. Note – the FACSCalibur is the only flow cytometer in the RCF that is made available for end-user operation.

Scientific Advisor: Dr. Robert Chervenak

**BD LSRII-UV**

The LSRII UV is capable detecting up to 14 parameters (Forward Scatter, Side Scatter, and twelve fluorescence detectors). It has four lasers for excitation of fluorochromes: a) a Coherent Sapphire laser for 488-nm excitation; b) a JDS Uniphase HeNe laser for 633-nm excitation; c) a Coherent VioFlame for 405-nm excitation; and d) a Lightwave UV laser for 355-nm excitation. In its present configuration, the instrument is set up to detect 6 colors excited by the 488-nm laser, 2 colors excited by the 633-nm laser, 2 colors excited by the 405-nm laser and 2 colors excited by the UV laser. This instrument uses BD Biosciences FacsDiva software for acquisition and analysis.

Scientific Advisor: Dr. Robert Chervenak

**BD LSRII-SORP**

The LSRII-SORP is capable detecting up to 17 parameters (Forward Scatter, Side Scatter, and 15 fluorescence detectors). It has 4 solid state lasers for excitation at 406 nm, 488 nm, 561 nm and 633 nm wavelengths. The optical bench on this analyzer is an exact match for that on the FACSAria III cell sorter, thus any cell population that can be defined by this instrument should be detected by the FACSAria III for sorting purposes. This instrument uses BD Biosciences FacsDiva software for acquisition and analysis.

Scientific Advisor: Dr. Robert Chervenak

**Workstations and Software.**
There is one Apple computer and two PCs available in the RCF Computer Lab for off-line analysis of flow cytometry data. The off-line Apple computer uses Cellquest Pro for data analysis, while the off-line PCs have the latest version of FacsDiva software for data analysis. Additional data analysis tools are available to investigators including FlowJo, FCS Express, FCAP and ModFit programs.

Scientific Advisor: Dr. Robert Chervenak

**MASS SPECTROMETRY**

**LCQ-DECA XP**

The Thermo Scientific LCQ-DECA XP is an ion-trap mass spectrometer with a dedicated Thermo HPLC system for highly selective and sensitive detection of metabolites and peptides. The instrument’s ion trap mass analyzer is particularly useful in cases where the molecular mass of the analyte is completely unknown. While enabling MS” capabilities, the ion trap provides structural information, allowing the analyst to “Top-down” the structure of the molecule. It is coupled to a Michrom Paradigm MG4 multidimensional LC system (Thermo) with integrated auto sampler. Finally, data dependent scanning allows the user to identify protein/peptide modifications.

Scientific Advisor: Dr. Chris Kevil

**SYNAPT HDMS**

This instrument, manufactured by Waters Corporation, is capable of operating in both quadrupole time-of-flight (Q-TOF) and ion mobility mode and is primarily used for unbiased detection of peptides and metabolites for proteomics and metabolomics applications, respectively. A nanoAcquity UPLC system with 2D technology is directly interfaced to nanospray ionization source of SYNAPT HDMS for proteomics applications. An Acquity UPLC system is interfaced to ESI/atmospheric pressure chemical ionization (APCI) source for metabolomics applications. An atmospheric pressure photoionization (APPI) source is also available for Synapt HDMS.

Scientific Advisor: Dr. Chris Kevil

**Q-TOF micro**

The Waters Corporation Q-TOF micro is a quadrupole/time-of-flight mass spectrometer for MS/MS-based sequencing of peptides with a mass resolving power of ~8,000FWHM. The Q-TOF is interfaced to a Waters CapLC HPLC system with integrated auto sampler for automated unattended nLC-MS/MS. The Q-TOF mass analyzer is particularly useful for the identification of post-translational modification.

Scientific Advisor: Dr. Chris Kevil

**XEVO TQ**
The Waters XEVO TQ is a tandem quadrupole mass spectrometer with a dedicated acquity UPLC system for highly selective and sensitive detection of metabolites and peptides. Furthermore, ScanWave technology of Xevo TQ provides enhanced spectral LC/MS/MS data acquisition capabilities.

Scientific Advisor: Dr. Chris Kevil

**REAL-TIME PCR**

The Research Core Facility at LSUHSC-S currently houses an Applied Biosystems 7900HT Fast Real-Time PCR System and three Bio-Rad CFX96 detection systems. Both instruments are fully integrated real-time PCR systems that allow detection and quantitation of nucleic acid sequences by using either the fluorogenic 5’ nuclease assay or SYBR Green 1 double-stranded DNA binding dye chemistry. These instruments can also be used for SNPs and allelic discrimination assays.

**ABI 7900HT Fast Real-Time PCR System**

The Applied Biosystems 7900HT Fast Real-Time PCR System is the only real-time quantitative PCR system that combines 96- and 384-well plate compatibility and the TaqMan® Low Density Array. With optional Fast real-time PCR capability, this system reduces run time to about 35 minutes in a standard 96-well format, or about 55 minutes in a 384-well plate. Key applications include gene expression quantitation and the detection of single nucleotide polymorphisms (SNPs) using the fluorogenic 5’ nuclease assay.

To induce fluorescence, the 7900HT system distributes light from an argon laser excitation source to all sample wells via a dual-axis synchronous scanning head. It then directs the resulting fluorescent emission through a spectrograph to a CCD camera. Emission wavelengths from 500-660 nm are monitored allowing the simultaneous detection of multiple fluorophores. The system is compatible with FAM/SYBR Green I, VIC/JOE, NED/TAMRA/ Cy3, ROX/Texas Red and Cy5 fluorescent dyes.

The Sequence Detection Software for the 7900HT system runs on the Windows XP operating system and is used for instrument control, data collection, and data analysis. The software includes a plate set-up wizard for easy experimental design.

Scientific Advisor: Dr. Rona Scott

**Bio-Rad CFX96**

The RCF currently houses three Bio-Rad CFX96 instruments. The CFX96 is a six-channel real-time PCR system that combines advanced optical technology with precise thermal control to deliver sensitive, reliable detection. The system’s solid-state optical technology (six filtered LEDs, each with a corresponding filtered photodiode) maximizes fluorescence detection for specific dyes in specific channels, providing sensitive detection for quantification and target discrimination. Data are collected from all wells during data acquisition. At every position and with every scan, the optics shuttle is reproducibly centered above each well, so the light path is always optimal and there is no need to sacrifice data collection on one of the channels to normalize to a passive reference. Users can select multiple data acquisition modes, including a one-color fast scan for SYBR green. Thermal gradient
features can be used to optimize reactions in a single run. The new CFX Manager software has advanced analysis tools for performing normalized gene expression. In addition, this system does not require fluorescein or ROX for instrument normalization.

Scientific Advisor: Dr. Rona Scott

SMALL ANIMAL IMAGING FACILITY

The Small Animal Imaging Facility at Louisiana State University Health Sciences Center is a state-of-the-art center for molecular imaging. This resource is located within the barrier facility of the Animal Resources Facility. Over 3,000 square feet have been devoted to this facility. A group of administrators, scientists, radiation safety experts, and clinicians has been organized to aid in the direction of this facility. The center offers micro positron emission tomography (microPET), micro-computed assisted tomography (microCT), microSPECT-PET-CT, and optical imaging, including in vivo chemiluminescence and fluorescence imaging capabilities.

MicroPET

This system provides high performance, functional imaging for studies involving animal models of disease, genetically engineered animals, pharmaceutical development, and radiotracer development. The facility has purchased a microPET R4 device from Concorde Microsystems, Incorporated. This unit allows non-invasive serial and longitudinal studies to be performed in the same animal. Isotopes are provided to investigators in cooperation with the Biomedical Research Foundation (BRF) of Northwest Louisiana PET imaging center cyclotron.

Scientific Advisor: Dr. Felicity Gavins

MicroCT

The MicroCT generates anatomic reference for the MicroPET data sets, as well as provides the capability of bone morphology and density measurements, tumor identification and classification, fat pad distribution and volume measurements, as well as many other types of studies. The center has a MicroCT unit custom built by Imtek, Inc. This unit uses the same gantry as the microPET machine, which allows superimposition of images for anatomic correlation of functional PET studies. Resolution is up to 45 microns and real-time image reconstruction is possible with this unit.

Scientific Advisor: Dr. Felicity Gavins

MicroSPECT-PET-CT

The LSUHSC-Shreveport Small Animal Imaging Core Facility recently purchased a multi-modality SPECT-PET-CT imaging system (FLEX Triumph™ from Gamma-Medica Ideas Inc). This system dramatically enhances the capability of the Facility by:

- Providing SPECT imaging capability with a next-generation system that can image two different radioisotopes simultaneously.
- Enhancing PET imaging capability with a next-generation system that dramatically increases resolution to about 1 mm from our current system.
- Combining a CT in one unit, which easily and automatically enables anatomical structure overlays.

- Allowing real-time vital sign monitoring of the animal subjects.

Two classes of radiotracer imaging systems exist: those designed to imaging single-gamma emitting radionuclides such as Technetium-99m or Iodine-131 and those designed to image positron-emitting radionuclides such as Fluorine-18, Carbon-11, Nitrogen-13, Oxygen-15 and less often Copper-64 and Iodine-124. The former is known as single photon imaging, or when performed tomographically, SPECT (single photon emission computed tomography). The latter is known as PET (positron emission tomography). SPECT and PET techniques are able to image as low as 10$^{-10}$ to 10$^{-12}$ M of radiolabeled substrate. In general, PET has higher spatial resolution and sensitivity, and is easier to quantify than SPECT. However, SPECT radiotracers are cheaper and much more widely available. In addition, next-generation SPECT systems have dramatically increased sensitivity. Molecular imaging using PET or SPECT combined with X-ray Computed Tomography (CT) scanning is a complementary approach in the sense that PET or SPECT imaging can visualize functional tracers at a very sensitive level and CT can delineate these activities with respect to the anatomy. Resolution is increased to about 30 microns.

Scientific Advisor: Dr. Felicity Gavins

**Xenogen IVIS System**

The Small Animal Imaging Facility offers two optical imaging options, photon detection from chemiluminescent systems such as luciferase, and detection of fluorescence from models containing systems such as green fluorescent protein. Both of these modalities are imaged from the Xenogen IVIS imaging system. This technology combines specially designed imaging chambers and software with a charged-coupled device (CCD) camera. Investigators will be able to monitor and record cellular and genetic activity within a living organism in real time.

Scientific Advisor: Dr. Felicity Gavins

**HIGH THROUGHPUT/HIGH CONTENT SCREENING (INLET)**

The Feist-Weiller Cancer Center’s (FWCC) Innovative North Louisiana Experimental Therapeutics program (INLET) has two cores affiliated with the RCF located in rooms: a screening core as well as an efficacy core. The capabilities of these cores center around high throughput and high content compound screening, basic research support, data management and analysis and hit to lead development. High throughput technology is essential in targeted drug therapy, but high content phenotypic screening is gaining momentum. INLET operates two high content imaging platforms described below. The Incucyte™ (Essen BioScience) is an in house incubator platform which can image six 96-multi well plates at once and simultaneously perform data analysis with the system’s built in algorithms. In addition, INLET operates the Cellomics ArrayScan™ VTI, a high-throughput, high-content imaging platform which has been a driving force behind INLET’s novel phenotypic assay development.
**Incucyte System**

This platform consists of a high resolution microscope and CCD camera housed in an incubator. This allows for real time analysis of a variety of cell processes including proliferation, apoptosis, cell motility and cell invasion. These assays are available in a 96 well plate setup with up to 6 plates at a time. Essentially an investigator can perform almost 600 individual assays in a 3 day period with recorded video and graphically presented data available at the end of the assay. Normal insert based motility and invasion assays can be performed in a 3 day period but less than 30 wells are normally done at a time and require a much larger amount of data acquisition effort and data analysis. We have modified the Incucyte Zoom system to automatically acquire real time data for growth of 3D spheroids allowing for testing of drugs in an environment more closely mimicking in vivo states.

Scientific Advisor: Dr. Jim Cardelli

**Cellomics ArrayScan VTI**

This high-content analysis system complements the high-throughput resources in the Core. This platform allows for both drug screening with over 50 different application based cell phenotypic assays as well as for high throughput research purposes. In addition, sophisticated cell imaging equipment is including a state-of-the-art inverted phase-contrast microscope/camera system and upright high resolution epifluorescent microscope/imaging system. INLET has upgraded the Cellomics high content imaging platform with the purchase of a new high resolution CCD camera, a Dell Precision workstation and HCS studio software upgrade, as well as, 40X and 63X optical objectives. The new X1 CCD camera has significantly improved quantum efficiency by 4X the previous camera especially, in wavelengths greater than 550 nm. Not only is the X1 more sensitive to lower energy wavelengths, but it also increases the biological field of view/capture by 50%. Both the 40X and 63X objectives with high numerical apertures allows us to visualize submicron sizes of cellular objects and definitively view fragmented compartments. Having the upgrades to our system has improved our functionality as a core by opening a multitude of possibilities in imaging subcellular structures in mammalian cells and in yeast.

Scientific Advisor: Dr. Jim Cardelli

**RCF COMPUTER LABORATORY**

Because data generated from most of the RCF technologies requires very specific, sophisticated and expensive software, the RCF maintains a laboratory housing computers that run numerous software packages specifically designed for real-time PCR, gene array and sequencing, microscopy, mass spectrometry and flow cytometry data analysis. The RCF provides access to, and training on any of these software systems at no cost to investigators using RCF technologies. This laboratory is open to all RCF investigators and is available 24 hours/day, 7 days/week.

Scientific Advisor: Dr. Robert Chervenak

**ANIMAL RESOURCE FACILITY**
LSU Health Sciences Center in Shreveport supports all aspects of teaching, testing and research that require the use of animals. The facility is operated in compliance with Public Law 89-544 (Animal Welfare Act.) and its amendments, Public Health Services Policy on Humane Care and Use of Laboratory Animals (PHS Policy), and The Guide for the Care and Use of Laboratory Animals. The main facility is located on the ninth floor of the Medical School building and the ninth floor of the BRI building.

The Animal Care and Use Program of the LSU Health Sciences Center, Shreveport, including the animal resource facility, is accredited by the Association for the Assessment and Accreditation of Laboratory Animal Care, International (AAALAC). The facility is registered with the U.S. Department of Agriculture as part of the LSU System. And finally, this institution maintains a separate assurance with the office of Laboratory Welfare, National Institutes of Health.

Students who use animals in their research projects are required to complete a training program. The program consists of modules taken on-line from any computer with internet access. Each individual will take only those modules that cover 1) the basic knowledge required by the law and policy, 2) information on the species with which that individual will work 3) aseptic surgery techniques and anesthesia if that individual is performing that type of work, and 4) information concerning safety and zoonotic diseases of laboratory animals. Each module consists of reading material and a short exam at the end. A module usually takes 15-20 minutes to complete.

At the completion of a module, the individual’s score is forwarded to the Institutional Animal Care and Use Committee (IACUC) Coordinator (Ms. Laura Mims, in the Office of Sponsored Programs and Technology Transfer) for recording purposes. Successful completion of all assigned modules is necessary to obtain the certification number and access to the animal facility.

**INFORMATION TECHNOLOGY**

**Information Technology for Teaching and Research is Supported by Three Departments:** the Medical Library, the Department of Computer Services, and the Department of Academic Computing. The Library provides computerized access to sixty nine databases and electronic journals and books as well as journals and books in print. The Library also includes small group teaching/study rooms, teleconferencing facilities and computer labs. The Academic Computing Section supports the Interactive Videodisc Lab in the Library and manages an additional computer lab (IBM) that can be scheduled for classroom use. Computer Services teaches a number of computer courses (word processing, Internet, spreadsheet, database, PC fundamentals) and manages a large IBM mainframe computer. Statistical packages, Internet, E-Mail, and administrative and database programs are available through the mainframe.

**Current Protocols on line.** The library has purchased access to Current Protocols on line. These can be found at the library site, http://lib.sh.lsuhsce.edu

These include Current Protocols in: Bioinformatics, Cell Biology, Cytometry, Human Genetics, Immunology, Molecular Biology, Neuroscience, Nucleic Acid Chemistry, Pharmacology, Protein Science, and Toxicology.
DESCRIPTION OF THE BUILDINGS OF THE LSUHSC-S COMPLEX

Building A is also referred to as the Comp Care Building; it is occupied mainly by Comprehensive Care and Family Medicine Clinics. Building A is separate from Building B, connected only through the Ground floor, and a covered exterior walkway at the first-floor level.

Building B is the bulk of the Med School Complex. It holds the classrooms, departmental offices, faculty offices, laboratories, and other administrative offices. Other important places in "B" Building are the following:

G floor: Mailroom, student lounge, exercise room, bookstore, Wow Café and PJ’s Coffee, the Donald Zadeck Conference Center

First floor: Registrar's office, Medical Student Affairs office, School of Graduate Studies office, Student Financial Aid office, cashier's counter (Bursar’s Office), Chancellor’s office, Medical School Interim Dean office, Quality Enhancement Plan (QEP) office, Information Services office, Associate Dean for Academic Affairs office

Building C is directly connected to "B" Building on the first and third floors. Some classes are held in the Core Teaching Laboratory on the Ground Floor in Building C. The Library, Student Activities Office, and the Auditorium are on the first floor. The Testing Center is on the third floor. Medical Communications, faculty offices and laboratories, the Psychiatry, Neurology and Neurosurgery Departments are also found in "C" Building.

HOSPITAL COMPLEX

The cafeteria, money machine, Credit Union, and pharmacy are all on the ground floor of the hospital complex.

ADMINISTRATION BUILDING

This building, as its name implies, houses administration offices such as Human Resources, Budget and Finance and Grants Accounting, Payroll as well Parking. A number of clinical department offices of the Medical School are also located here. The Administration Building is connected to "B" Building by a small corridor between the first floors only.

BIOMEDICAL RESEARCH INSTITUTE (BRI) BUILDING

Each floor of the BRI is connected with the corresponding floor of the Medical School at the center of Building B. On the ground floor, tables near The Atrium Deli and Coffee Bar exit are available for lunch, etc. On each of the higher floors of the BRI atrium, there are tables and comfortable seating. You should feel free to use these areas, but take "extra-good" care on this "non-university" property. (Specifically, do not leave litter and keep feet off of tables, chairs, couches, etc.). The Office of Sponsored Programs and Technology is located on the first floor of this building, room F1-53.