THE UNIVERSITY OF TEXAS HEALTH SCIENCE CENTER AT SAN ANTONIO
GRADUATE SCHOOL OF BIOMEDICAL SCIENCES

GUIDELINES FOR THE GRADUATE PROGRAM IN
CELLULAR AND STRUCTURAL BIOLOGY

The Cellular and Structural Biology PhD and Master’s programs are being sunsetted and are no longer taking new students. This updated Handbook provides procedure and template documents to be used by students still enrolled in those programs.

The Graduate Program in Cellular and Structural Biology offers research training in the Biology of Aging; Cancer Biology; Cell & Molecular Biology; and Genetics, Genomics & Development. The curriculum is designed for those seeking Doctor of Philosophy degrees who intend to pursue a career in the academic community or industry. The graduate program also offers Master of Science degrees in the Anatomical Sciences and Biotechnology. The Graduate Program is overseen by the Committee on Graduate Studies (COGS). As described in Attachment A, COGS is comprised of a group of faculty selected to administer various aspects of the Graduate Program, including monitoring of student progress.

GENERAL REQUIREMENTS FOR GRADUATE STUDENTS

Requirements for Admission

Graduate students will be recruited through the Integrated Multidisciplinary Graduate Program (IMGP) Admissions Committee. Students beginning graduate study ordinarily matriculate during the fall session. Completed applications, including scores on the Graduate Record Examination Aptitude Test, certified transcripts of all college and/or postgraduate work, a letter from the applicant stating his/her objectives in graduate study, and three letters of recommendation, must be received before January 15th to be considered for admission in the following August. January admission will not be considered except in very unusual circumstances. Applicants must possess a Bachelor’s degree or an equivalent degree and must have credit for the following courses.

Biology: Two years as required for science majors.
Chemistry: One year of general inorganic and a course in organic chemistry.
Physics: One year as required for science majors.

(N.B. The courses listed above should include laboratory experience.)

Mathematics: At least one semester of calculus.

The Guidelines of the Graduate School of Biomedical Sciences recommends a minimum undergraduate GPA of 3.0 and a cumulative (Verbal plus Quantitative) GRE score of 1000. At the discretion of the Admissions Committee and with approval from the Graduate Faculty Council, an admission requirement may be waived.

Admission of Graduate Students through Faculty Sponsorship

Recruitment of graduate students by the IMGP Admissions Committee may be supplemented by selections initiated by faculty members. This procedure will enable individual faculty members to look for potential graduate students who are interested in the sponsor’s particular line of research. The entering students selected by individual faculty members must meet the criteria for admission set
up by the Graduate School and be approved by the Admissions Committee. Unlike the students selected by the Admissions Committee, those recruited by individual faculty members will be supported by the sponsoring faculty's research grants from the beginning. The faculty sponsor is required to guarantee funding for at least one year. The students must satisfy all of the requirements outlined in the Cellular and Structural Biology Graduate Program Guidelines. A student will have the option to change his/her mentor. In the event that a student decides to leave the laboratory of the sponsoring faculty member, the original mentor will be under no further financial obligation to this student after the initial year of support. The student will have full responsibility for finding his/her own support for the ensuing years.

**Financial Assistance**

A Ph.D. student recruited by the Admissions Committee receives financial support for the first twelve months of study. At the end of the 12-month period, the responsibility for the student's stipend shifts to the laboratory in which he/she has been accepted to complete the dissertation research. The amount of the yearly stipend shall be in accordance with the policies of the Graduate School or the agency from which the fellowship is obtained. Students are encouraged to seek and provide their own federally-supported or private foundation fellowships to support their entire graduate training. Students on the M.S. track do not receive departmental stipends.

**Course Requirements for Ph.D. and M.S. Candidates**

Doctoral students in Cellular and Structural Biology are required to take a series of basic courses (designated the Core Curriculum) as described in the Catalogue of the Graduate School of Biomedical Sciences. Additional courses may be taken if desired by the student or at the request of the Supervising Professor and/or Qualifying Examination Committee. A typical course plan for Ph.D. students is included as Attachment B. The Ph.D. students will join a specific track after they have completed the INTD 5000 Fundamentals of Biomedical Sciences course and required rotations. The course requirements for Master's students will be determined on an individual basis; typical course plans for M.S. students are included in Attachment C.

**Core Curriculum:**
- INTD 5000 Fundamentals of Biomedical Sciences
- INTD 6002 Ethics in Research
- INTD 5008 IMGP Laboratory Rotation
- CSBL 5095 Experimental Design and Data Analysis

**Seminar Course:**

The student is required to register for and attend Seminar every fall and spring semester that he/she is enrolled in the Graduate Program. The Seminar Course is organized by the Student Seminar Chair, a faculty member selected by COGS. All students are expected to attend departmental seminars and a journal club in addition to the other activities, detailed below:
1. **Research Seminar**

Each Ph.D. student is required to present an oral seminar based on research conducted at this institution in the second and all subsequent years of graduate study. Student research seminars are designed to ensure that students receive adequate opportunity to communicate and defend their research results. Guidelines for student seminars are included as Attachment D.

2. **Seminar Course Grading**

Letter grades in the seminar course will be given for student attendance and participation in seminars and in journal clubs. Students participating in joint programs with a clinical department may file for exemption from seminar during semesters with heavy clinical loads. Each student in a clinical program is limited to two semesters of exemption.

3. **Journal Club**

A Ph.D. student must attend either the Departmental Journal Club or, with prior approval from COGS, another weekly journal club may be substituted. Each Ph.D. student is required to present a Journal Club presentation on a paper of his/her choice for two years of his/her graduate training.

**Laboratory Rotations:**

Laboratory rotations are required of the Ph.D. students; the details of the rotations are established under the IMGP. The student will complete a form for mentor selection provided by the IMGP.

Rotations are intended to: a) acquaint the student with specific research topics in the graduate program, b) introduce students to technique(s) which may prove useful in their dissertation research and c) allow an opportunity for both the mentor and the student to assess whether the student is compatible with the mentor and his/her laboratory personnel.

Master's students are not required to do rotations, but if they opt to, choice of the laboratories for rotations should be made based upon the student's specific research interests and in consultation with the Student Advisor. A proposed list of rotations will be prepared and given to the Student Advisor prior to beginning the first rotation. The evaluation form to be completed by the faculty member following completion of each rotation is included in the Guidelines as Attachment G. A grade of “Unsatisfactory” (U) for 50% or more of the semester hours applied to this requirement shall be grounds for dismissal from the Program. Once rotations are completed, the student will choose a laboratory for completion of his/her research. The form for mentor selection (Attachment F) must be signed by both the student and the proposed advisor and submitted for COGS approval prior to completion of the student's first year.

**Grade Requirements**

A minimum of a 3.0 cumulative grade point average must be maintained in order to remain in good academic standing. If a student receives a “D” or “F” in any course or a final grade of “C” in a Core Course (including the track-specific core course), he/she may be subject to dismissal from the Program. Additionally, if a student receives a grade of “C” or lower in a Core Course, remediation will be required. A grade of “B” or higher is required or the student will be subject to dismissal from the Program. If the cumulative grade point average drops below 3.0, the student shall be placed on academic probation. While on probation, a student must maintain a “B” average in all registered courses. If the grade point average drops below 3.0 in any semester during the probationary period or remains below 3.0 for one calendar year, the student may be dismissed from the Program. A 3.0 grade point average is required for admission to candidacy as well as for graduation.
Exemptions from Required Course Work

Requests for exemptions from any of the required course work must be submitted in writing to the Chair of COGS and must be approved by COGS.

Exemptions for Double Degree, Transfer and Advanced Students

Students enrolled concurrently in medical or dental school, those transferring from another graduate program and ones with Master's degrees who have been admitted to the Graduate Program in Cellular and Structural Biology may petition COGS for exemption from one or more of the courses within the Core Curriculum. Exemption will only be considered if a grade of "B" or better was obtained in an equivalent course. If letter grades are not available, the student's numerical average must be at or above the class average. Master's candidates can usually transfer up to six semester hours of course work, while the number of semester hours for which predoctoral students may obtain transfer credit will not be subject to a predetermined limit.

Student Evaluations

The Student Advisors will conduct semiannual evaluations of each student for the purpose of following his/her progress throughout the tenure of the graduate program. These evaluations are to take place at the end of the fall and the spring semesters of each academic year. A grade of satisfactory (S) or unsatisfactory (U) shall be given by each Student Advisor and will be reported as the grade for Research/Dissertation/Thesis. For the first two years, the grade will be based on reports from the laboratories in which the student has done rotations or from his/her chosen mentor and on student participation in required course work, seminars, journal clubs and other departmental activities. After appointment of the dissertation/thesis supervising committee, the Research grade will be based on reports from the research advisor and committee members after semiannual committee meetings, research evaluations based on the student's annual seminar and participation in departmental seminars, journal clubs and other departmental activities. The forms for committee and rotation progress reports are appended as Attachment G. If a committee meeting has not been held within 6 months, a grade of "U" will be given for research progress that semester. However, if the student has already scheduled a committee meeting, the Student Advisor has the option of giving a grade of "I". Failure of a student to show satisfactory progress toward his/her degree goal based on the outcome of these evaluations may be grounds for dismissal from the Cellular and Structural Biology Graduate Program.

SPECIFIC DEGREE REQUIREMENTS

MASTER OF SCIENCE DEGREE

The program of graduate study leading to the Master's Degree will depend on the student, the area of specialization, and the professional career for which the student is preparing. A typical program is outlined in Attachment C. A minimum of 30 semester hours of graduate credit is required for the Master's degree. Twelve of these hours must be completed in courses other than Seminar, Supervised Teaching, Research and Thesis. COGS requires a thesis and an oral examination for completion of the degree.

Procedural Sequence for Students Working Toward the M.S. Degree

During the first year of study, an assigned member of the IMGP Admissions Committee will serve as the academic advisor. During this time, each student shall take at least 12 hours of courses other than seminar, supervised teaching, and research/thesis. Members of the Supervising Committee (see below) may also be selected during the latter part of the first year so that they may assist in formulation and review of the thesis project. The thesis proposal should be prepared early in
the second year (Attachment H for guidelines). After the supervising professor and members of the Supervising Committee have approved the final draft of the proposal, the student will present the proposal to the members of COGS in a short (10-15 minute) talk to be given no later than the end of the first semester of the second year. Three items must be given to the Chair of COGS a minimum of one week prior to the presentation: i) a copy of the final thesis proposal, ii) a signed copy of the committee proposal approval form (attachment J), and iii) the Recommendation for Approval of Thesis Proposal and Supervising Committee Form (included as an item under Attachment K). Copies of the proposal will be distributed to all members of COGS such that it can be read prior to the defense. After the presentation, members of COGS will ask the students questions about the proposal. They will then vote to accept the proposal and the committee or recommend changes.

The student and advisor will provide COGS the names of the members of the student’s Supervising Committee. The Supervising Committee shall consist of the Supervising Professor (research advisor) who shall act as the chair, at least two additional members of the Graduate Faculty in Cellular and Structural Biology, and one individual who is a member of another Ph.D.-granting graduate program from within the Health Science Center (this individual may also serve on the CSB graduate faculty, but his/her primary appointment must be in a department other than CSB). Once this Committee has been approved by COGS and the student has removed all grades of "I" (Incomplete) from his/her record the forms recommending his/her admission to candidacy (Attachment K) will be submitted to the Dean of the Graduate School. Any exceptions to the defined committee structure require COGS approval. After admission to candidacy the student must register for at least one semester of Thesis prior to graduation. The Supervising Committee shall then guide the student in selection of any additional courses and in his/her research activities.

After the proposal has been approved and the student admitted to candidacy, the Supervising Committee shall hold regularly scheduled meetings with the candidate at least twice a year (or more often if needed) to determine progress on the project. The Committee shall evaluate work conducted to date and recommend any additional studies to be undertaken. Each member shall complete an evaluation form for the M.S. student (see Attachment G). It is the student’s responsibility to give the Student Advisor the completed forms from these meetings. If a member of the Committee is absent from a meeting, he/she must be apprised of the student’s progress by the Supervising Professor. When the Supervising Committee is satisfied that the research is near completion, it shall permit the writing of the thesis; it will be defended in a seminar-type presentation scheduled through the Graduate School Office. Stipulations regarding preparation of the thesis and its final approval are identical to those described for the doctoral dissertation and are included (Attachment I).

**SPECIFIC DEGREE REQUIREMENTS**

**Doctor of Philosophy Degree**

The program of graduate study leading to the degree of Doctor of Philosophy will depend on the student, the area of specialization, and the professional career for which the student is preparing. A typical program is outlined in Attachment B.

**Procedural Sequence for Students Working Toward the Ph.D. Degree**

During the first year, the Student Advisor shall serve as the academic advisor for each beginning graduate student. In the first year, beginning graduate students shall take the Core Curriculum and the Core Course(s) specific for his/her chosen track. During this same time, students should be involved in research activities in the laboratory of at least three research scientists and may take any additional courses of interest listed in the Graduate Catalogue. By Spring of the first year of graduate study, each student should select an IMGP track and a research mentor.
I. **Required Courses**

In addition to the core curriculum mentioned above, all Ph.D. students in Cellular & Structural Biology are required to take the following courses. The particulars of the courses are designated by each of the tracks.

- Track-specific Core Course(s)
- Graduate Colloquium
- Scientific Writing

Six credit hours of electives from an approved list

II. **Qualifying Examination**

All Ph.D. students in the Cellular and Structural Biology Graduate Program are required to pass an oral Qualifying Examination. The Qualifying Examination shall consist of the student writing and then publicly defending a research proposal. It should be written in the format of an NIH-postdoctoral grant application (NIH form SF424_RR; Rev 6/2009) having a limit of 1 single-spaced page (not less than 11 font) to describe the Specific Aims and 6 pages for the Research Strategy including Significance, Background and Approach. The section on Literature Citations should not exceed two pages. The specifics of the qualifying exam will be determined by the track; the topic of the proposal must be original and may not be the subject of the student’s dissertation work. The purpose of the Qualifying Examination is to test the ability of the student (1) to formulate an original hypothesis, (2) to design feasible experiments to test that hypothesis, and (3) to defend the resulting proposal. Individual tracks will be responsible for evaluating the grant proposal. The student’s research mentor cannot be a member of the Qualifying Examination Committee, but should attend the defense.

III. **Formal Approval of Dissertation Committee**

After completion of the Qualifying Examination, the student, with the help of his/her research advisor, should choose a Dissertation Committee. The committee must consist of at least five persons with the following suggested membership:

a) A supervising professor and two credentialed faculty members in the same track as the student or the same department as the supervising professor;

b) A credentialed faculty member whose primary appointment is not in the same department as the supervising professor;

c) An expert in the area of the dissertation research and who has no appointment in the UTHSCSA.

Any exceptions to this prescribed committee structure must be justified in a memo to the Chair of COGS from the student and mentor. These requests will then be reviewed by COGS and a vote of approval/disapproval taken.

The first duty of this committee will be to assist the student in the planning of his/her dissertation project and in the writing of the dissertation proposal. It is the responsibility of the Dissertation Advisor to present the list of committee members to the COGS Chair and to the Seminar Chair for presentation to the Cellular and Structural Biology COGS.

The Dissertation Committee shall meet as a group with the candidate at least twice a year. No later than one week prior to each meeting, the student shall submit to the Dissertation Committee a
report of progress on the dissertation research work, including statements of objectives of the research, methods, major results obtained, conclusions drawn, and proposed direction of future work. The Committee shall evaluate the progress made by the student and agree on the direction of future work to be undertaken. Each member shall complete an evaluation form for Ph.D. students (see Attachment G). It is the student’s responsibility to give the Student Advisor the completed forms. The Dissertation Committee shall decide when the student's progress is sufficient to permit writing the dissertation.

IV. Presentation of Dissertation Proposal

Note: The format for the written part of the Qualifying Examination and the Dissertation Proposal are identical; however, there can be no overlap in topics. All Ph.D. students in the Cellular and Structural Biology Graduate Program are required to write and defend a Dissertation Proposal. It should be written in the format of an NIH-postdoctoral grant application (NIH form SF424 RR; Rev 6/2009) having a limit of 1 single-spaced page (not less than 11 font) to describe the Specific Aims and 6 pages for the Research Strategy including Significance, Background and Approach. The section on Literature Citations is not included in the 10 page limit, but it should not exceed two pages. The specifics of the Dissertation Proposal will be determined by the track.

After the written version is completed, it must receive approval by the local members of the student’s committee. Thereafter, the student shall present the proposal to the graduate faculty in a seminar to be given by the end of the summer semester of the second year. Two weeks before the seminar, the student shall provide a written copy of the proposal (Format described above) and the signed Recommendation for Approval of the Dissertation Research Proposal and Supervising Committee form (one of the items in Attachment K) to the Seminar Chair who will make copies of the proposal available to the graduate faculty for critical review. After the student has completed his/her presentation, the Seminar Chair will open the meeting for questions from the audience. After all questions have been exhausted, all in attendance, exclusive of the graduate faculty, shall be asked to leave and the Seminar Chair will open the meeting for the discussion of the proposal. At the end of the discussion, the graduate faculty shall vote for approval or disapproval of the dissertation proposal. A majority vote shall determine approval or disapproval. The composition of the Dissertation Supervising Committee will then be discussed and approved or disapproved by vote of the graduate faculty.

In the case of disapproval, the Chair of the COGS and the Seminar Chair will meet with the student and the dissertation advisor to present the reasons given for this decision. Based on this input, the student shall present a revised or new proposal to the COGS within three months.

V. Admission to Candidacy

After the student has passed the Qualifying Examination and has successfully presented a dissertation proposal to COGS, and removed all grades of "I" (Incomplete) from his/her record, the forms recommending his/her admission to candidacy (Attachment K) will be submitted to the Dean of the Graduate School. The student will then register for Dissertation (INTD 7099 or CSBL 7099) instead of Research hours. A student must register for Dissertation at least twice prior to graduation. He/she shall remain in residence in the Program and participate in all activities normally required of full-time graduate students until the Final Oral Examination has been conducted and the dissertation is completed and submitted to the for the Graduate Dean's Office awarding of the degree.

VI. The Final Oral Examination

The instructions for preparation and submission of the dissertation should be obtained from the Graduate Dean's Office. The student may opt to utilize either the traditional dissertation format or the optional chapter format. The student should have his/her Dissertation Supervising Committee members sign “Request for Final Defense and Oral Examination (GSBS Form 40)” in Appendix K and
submit the form to the Graduate School Dean’s Office 14 days prior to the Final Oral Examination. The Final Oral Examination shall be conducted by the Dissertation Committee. All interested persons may attend. Ordinarily the examination will be preceded by a seminar-type presentation of the research findings by the candidate. This presentation should not exceed 50 minutes. Immediately following the presentation, the members of the audience, exclusive of the Supervising Committee, shall be given the opportunity to ask questions. After these questions have been exhausted or within a reasonable length of time, the audience is to be excused. The examination shall continue with the Supervising Committee and the candidate only. Following completion of the examination, the Supervising Committee shall vote on the candidate’s performance and fill out “Report on Final Examination (GSBS Form 43)” in Appendix K. More than one negative vote shall constitute failure. In the event of a failing performance, the Committee in consultation with COGS, shall decide on the appropriateness of another exam.

VII. The Dissertation

The typing of drafts and the final copy, collating and proofreading of the dissertation are the responsibility of the student. The departmental secretarial staff shall not perform any of the above as part of its regular duties. A final copy of the dissertation must be submitted to the Chair of COGS of the Graduate Program in Cellular and Structural Biology.

VIII. Awarding of the Degree

Once all requirements for the Ph.D. have been satisfied, the relevant paperwork will be given to the Chair of COGS for processing and presentation to Graduate Faculty Council (GFC). After the Chair of COGS has approved the dissertation, the student must submit the final copy of the dissertation and all other supportive information to the Graduate Dean’s Office. The recommendation of COGS is then presented to GFC.

IX. Time to Completion of Degree Requirements

Ph.D. students are usually expected to complete all degree requirements, including the dissertation defense, in approximately five years of full-time study. If a student has not defended his/her dissertation before completing six years of full-time studies, he/she is subject to dismissal from the Program for lack of progress. A student may request that COGS extend the limit of six years for degree completion.

Guidelines approved by COGS 6/1/84. Amended by the graduate faculty 1/9/85; 3/21/85; 6/3/85; 11/5/85; 1/8/88; 07/19/88; 02/17/89; 03/27/90; 12/19/91; 03/20/94; 07/01/94; 08/13/98; 6/10/99; 11/01/01; 06/20/02; 09/24/03, 08/14/07, 07/01/09, 8/20/10.
GUIDELINES FOR PROGRAM ADMINISTRATION BY THE FACULTY OF
CELLULAR AND STRUCTURAL BIOLOGY

1. Criteria for membership on the Graduate Faculty. Faculty colleagues whose primary appointments are outside of the Department of Cellular and Structural Biology must meet the following requirements:

A. Ph.D., M.D., D.D.S. (or equivalent) degree
B. Evidence of an active research program
C. Record of active participation in Cellular and Structural Biology's Graduate courses, laboratory rotations, comprehensive and qualifying exams and dissertation committees
D. Acceptance by one of the tracks (Biology of Aging, Cancer Biology, Cell & Molecular Biology, or Genetics, Genomics & Development)

2. Several faculty members will oversee the administration of the Cellular and Structural Biology Graduate Program as members of COGS. The members of COGS and the term of each position are:

Chair of COGS - 3 yrs. Appointment by the Chair of the Department of Cellular & Structural Biology.

Full time faculty member of Cellular and Structural Biology. Will be the Departmental Graduate Faculty Council (GFC) Representative and serve as a liaison between the Department and the Graduate Council for the purpose of completing all business matters related to the Cellular and Structural Biology Graduate program. Will oversee the efficient execution of all activities of COGS so that the Graduate Program is carried out in an organized fashion. Will schedule COGS meetings. The outgoing Chair will assist the newly appointed Chair with August activities to facilitate the transition.

Leaders of CSB Tracks – Appointment by the Graduate Dean.

Full time faculty member. Will oversee the efficient execution of all activities of the track so that the Graduate Program is carried out in an organized fashion. Will schedule Track administration meetings and report Track activities to COGS.

Student Advisor - 3 yrs. Appointment by the Chair of Department.

Full time faculty member of Cellular and Structural Biology. Will advise students, carry out student evaluations, supervise student rotations, monitor course requirements, and assure that deadlines and committee appointments are met. The outgoing Student Advisor will assist the newly appointed Student Advisor with Orientation and other August activities to facilitate the transition.

Admissions Chair - 3 yrs. Appointment by the Chair of Department.

Full time faculty member of Cellular and Structural Biology. Will appoint and work with a committee chosen to reflect the various research areas of the faculty of Cellular and Structural Biology. Provisions will be made for staggering terms of Committee members. Will supervise the selection of qualified candidates for the Cellular and Structural Biology Graduate Program.

Seminar Program Chair - 2 yrs. Appointment by COGS.

Will supervise student research seminars and obtain faculty evaluations of the student presentations.

Journal Club Chair - 2 yrs. Appointment by COGS.

Will organize and direct the departmental journal club where students and faculty will participate in discussing significant and recent publications.

Awards Committee Chair - 2 yrs. Appointment by COGS.
Will supervise the evaluation of students eligible for departmental, institutional, and other awards and will make recommendations to COGS on appropriate nominations for such awards.

**Anatomy Liaison** - 2 yrs. Appointment by COGS.

Will assist with all aspects of the graduate program involving students in the professional anatomy courses. This will include M.S. students with an emphasis on anatomical sciences, Ph.D. students who choose to take and/or teach in anatomy courses, and dual degree students. This individual will serve as the COGS liaison and ensure that any issues or special needs of these students are brought to the attention of COGS.
Attachment B

TYPICAL COURSE PLAN FOR A Ph. D. STUDENT
ENTERING IN THE FALL SEMESTER

Fall semester - first year
Fundamentals of Biomedical Sciences 8
Research (rotations) 2

Spring semester - first year
Track specific core course 3 or 4
Other core courses variable
*Colloquium 2
Research and Rotations to 9 credit hours

**Summer – first and following years
Research 4
Methods in Cell Biology 1
Seminar 1

Fall semester - second year
Experimental Design/Data Analysis 2
Scientific Writing 2
Seminar 1
Research 4

Spring semester - second year
Seminar 1
Research 7.5
Ethics 0.5

Writing and defense of dissertation proposal must be completed by the Summer of the second year

Fall/Spring semester - third year
Seminar 1
Dissertation (if proposal has passed COGS) variable

*Colloquium may also be taken in the summer of year 1.

Elective(s) (six credit hours of electives from an approved list must be taken anytime during training)
Supervised Teaching (must be completed anytime during training)
Seminar may be required in the summer semester to accommodate all the student presentations.

**As of 2014 summer terms were no longer offered in the PhD/MS Programs.
TYPICAL COURSE PLAN FOR an M.D./Ph.D. STUDENT
in Cellular & Structural Biology
(Biology of Aging; Cancer Biology; Cell & Molecular Biology; and Genetics, Genomics and Development tracks)

Years 1 and 2 will concentrate on medical coursework and rotations to identify a mentor. The Ph.D. portion of the degree is generally 4 years. In the seventh year the student will reintegrate into medical school and complete his/her medical training.

PhD. Program – specificities for each track are given in the track guidelines.

Year 3

Fall
CSBL 5095 Experimental Design and Data Analysis
CSBL 6097 Research

Spring
Track-Specific Core Course
INTD 6002 Ethics
CSBL 6097 Research
CSBL 5089 Graduate Colloquium

**Summer
CSBL 6097 Research

Year 4

Fall
CSBL 5077 Scientific Writing
CSBL 6097 Research

Spring
Qualifying exam Advance to candidacy Define dissertation proposal
Identify and meet with committee
Approval of Dissertation proposal
CSBL 6097 Research

Years 5 and 6*
CSBL 6097 Research
Meet with dissertation committee every 6 months
Present research annually

General: CSBL 6090 Seminar/journal club is required for each semester during the Ph.D. phase of the program

Elective courses and supervised teaching are not required of the M.D./Ph.D. Students.

*Two semesters of dissertation are required before graduation.

**As of 2014 summer terms were no longer offered in the PhD/MS Programs.
TYPICAL COURSE PLAN FOR a D.D.S./Ph.D.  
in Cellular & Structural Biology  
(Biology of Aging; Cancer Biology; Cell & Molecular Biology; and  
Genetics, Genomics and Development tracks)

The first 3-4 years will concentrate on Ph.D. training. After this period, the student will enter the D.D.S. program.

PhD. Program – specificities for each track are given in the track guidelines.

Year 1
Fall
  Fundamentals of Biomedical Sciences 8
  Research (rotations) 2

Spring
  Track specific core course 3 or 4
  Other core courses variable
  Colloquium 2
  Research and Rotations to 9 credit hours

**Summer
  Research

Year 2
Fall
  Experimental Design/Data Analysis 2
  Scientific Writing 2
  Seminar 1
  Research 4

Spring
  Ethics 0.5
  Qualifying exam Advance to candidacy Define dissertation proposal Identify and meet with committee Approval of Dissertation proposal CSBL 6097 Research

Years 3-4*
  CSBL 6097 Research
  Meet with dissertation committee every 6 months
  Present research annually

General: CSBL 6090 Seminar/journal club is required for each semester during the Ph.D. phase of the program

Elective courses and supervised teaching are not required of the D.D.S./Ph.D. Students.

*Two semesters of dissertation are required before graduation.

**As of 2014 summer terms were no longer offered in the PhD/MS Programs.
TYPICAL COURSE PLAN FOR AN M.S. STUDENT ENTERING IN THE FALL SEMESTER

Biotechnology Track

Fall Semester - First Year
Fundamentals of Biomedical Sciences
Research

Spring Semester - First Year
Research
Advanced Core Course or Elective (optional)
Ethics

**Summer Semester - First Year
Research

Fall Semester - Second Year
Experimental Design/Data Analysis
Research (Thesis proposal should be presented to COGS during this semester)

Spring Semester - Second Year
Thesis

Note: The Seminar Course MUST be taken at least once during a student's tenure in the Program.

**As of 2014 summer terms were no longer offered in the PhD/MS Programs.
TYPICAL COURSE PLAN FOR AN M.S. STUDENT ENTERING IN THE FALL SEMESTER *Anatomy* Track

**Summer Semester - First Year**
- Gross Human Anatomy (OT) **5**
- Research **1**

**Fall Semester - First Year**
- Gross Anatomy & Embryology (if the summer course was NOT taken) **7.5**
- Microscopic Anatomy **5**
- Research (if the summer course WAS taken) **4**

**Spring Semester - First Year**
- Neuroscience **4**
- Research **2-4**
- Ethics **0.5**

**Summer Semester - First Year**
- Research **4**

**Fall Semester - Second Year**
- Experimental Design/Data Analysis **2**
- Research (Thesis proposal should be presented to COGS during this semester) **6**

**Spring Semester - Second Year**
- Thesis **8**

**Note:** The Seminar Course AND Supervised Teaching MUST be taken at least once during a student's tenure in the Program.

**As of 2014 summer terms were no longer offered in the PhD/MS Programs.**
GUIDELINES FOR PRESENTATION OF STUDENT SEMINARS

WHY? To provide students with the opportunity to develop seminar presentation skills.

To provide faculty the opportunity to evaluate the student's progress on the research aims and to contribute their expertise.

WHEN? Second year students will present their dissertation proposals, including rationale and background, aims, any data obtained to-date, and the approaches to be used in the future.

More senior students will present a progress report each year. The goal is to update the department on the aims, progress, and work remaining.

WHAT? Important components to include in all student seminars:

**Introduction:** presentation of the biological background which leads to the question being addressed.

**Hypothesis:** clear statement of the BBQ (big biological question) and/or your working hypothesis

**Specific Aims:** each specific aim should be presented. For each aim, the student should be certain to note any changes made to the plan, discuss progress and conclusions to-date, note any problems and efforts to circumvent them, and describe briefly future experiments left to perform.

**Summary:** restate progress to-date on all aims. Provide general conclusions and implications. What progress has been made in addressing the BBQ?

HOW? Students should present a clear, concise seminar which has been practiced first with the mentor!

Slides should be carefully designed and checked ahead of time for visibility. Avoid the use of too much information on a single slide, print that is small and hard to read and colors that are difficult to discern on the background.
Cellular and Structural Biology Graduate Program  
Laboratory Rotations

I plan to rotate in the following laboratories:

<table>
<thead>
<tr>
<th>Name of Faculty Member</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. (please print)</td>
<td></td>
</tr>
<tr>
<td>2. (please print)</td>
<td></td>
</tr>
<tr>
<td>3. (please print)</td>
<td></td>
</tr>
</tbody>
</table>

Changes in your planned rotations are acceptable and may be made after consultation with the Student Advisor.

Name: (please print)

Signature: ________________________________

Date: ________________________________

Please return this form to The Academic Program Coordinator and to the Graduate Advisor.
Cellular and Structural Biology Graduate Program  
Mentor Selection Form for M.S.

Date: _______________________

Student Name: __________________________________________

I would like to request COGS approval of Dr. ____________________ as my Proposed Supervising Professor.

Mentor agreement:

I am willing and able to serve as the Supervising Professor for ___________________________.

(name of student)

_____________________________________
Signature, Supervising Professor

Please return this form to the Academic Program Coordinator and to the Graduate Advisor.
Department of Cellular and Structural Biology Graduate Program
Evaluation of a Laboratory Rotation

Student Name:

Faculty Name:

Inclusive dates of student's laboratory rotation:

Please comment on each of the following:

Was the student attentive and hard-working?

Was the student talented in the lab?

If the student requested to work in your lab, would you be willing to accept him/her?

Additional comments?

For the laboratory rotation, please give a grade of S (satisfactory) or U (unsatisfactory) below.

Grade

Please address each of the questions above and return this form to The Academic Program Coordinator and to the Graduate Advisor.
Department of Cellular and Structural Biology Graduate Program
Evaluation by the Committee Members - M.S. Student

Student Name:
Month/Year Started Program:
Date of Meeting:
Has thesis proposal been approved:

The student should complete the information above and distribute forms to faculty at his/her scheduled committee meeting.

Committee member: Please comment on issues that particularly need improvement.

Was the presentation thorough and understandable?

Is the thesis project feasible in a reasonable period of time?

Was an identifiable hypothesis presented?

Do the experiments appear to be well planned and address the hypothesis?

Is the work sufficiently thorough, timely, and valid to form a basis for publication?

Does the student have the appropriate command of the literature?

Are the student’s responses to questions clear and to the point?

Have at least some experiments been done thoroughly and finished?

Is the student likely to graduate by the target date listed above?

Additional comments:

Committee Member Name:
Overall Evaluation of research progress (Please circle):
U Unsatisfactory
S Satisfactory for this point in the program
E Excellent

After each committee member has completed the evaluation, the student should collect the evaluations, review them with his/her supervising professor and then make two copies. One copy should be kept by the student; one copy should be given to the Academic Program Coordinator for inclusion in the student’s file and the originals should be forwarded to the Student Advisor.
Department of Cellular and Structural Biology Graduate Program
Evaluation by the Committee Members - Second Year Ph.D. Student

Student Name:
Month/Year Started Program:
Date of Meeting:

*The student should complete the information above and distribute forms to faculty at his/her scheduled committee meeting.*

**Committee member: Please comment on issues that particularly need improvement.**

**For the first semester:**

1. Is the student attentive and hard-working?
2. Has a dissertation project with a testable hypothesis been identified?
3. Have potential committee members been identified?
4. Is the student becoming acquainted with the literature appropriate for the project?
5. Does the student design experiments and include appropriate controls?

**For the second semester:**

1. Is there an identifiable experimental plan?
2. Is there an identifiable hypothesis being tested?
3. Is the project feasible?
4. Was there an adequate explanation as to why the experiments are being conducted?
5. Is the student well informed?
6. Were the student’s responses to questions clear and to the point?

**Additional comments:**

---

Committee Member Name:
Overall Evaluation of research progress (*Please circle*):
U Unsatisfactory
S Satisfactory for this point in the program
E Excellent

*After each committee member has completed the evaluation, the student should collect the evaluations, review them with his/her supervising professor and then make two copies. One copy should be kept by the student; one copy should be given to the Academic Program Coordinator for inclusion in the student’s file and the originals should be forwarded to the Track Student Advisor.*
Department of Cellular and Structural Biology Graduate Program
Evaluation by the Committee Members - Third Year Ph.D. Student

Student Name:
Month/Year Started Program:
Date of Meeting:
Has preliminary exam been taken?
Has dissertation proposal been approved?

The student should complete the information above and distribute forms to faculty at his/her scheduled committee meeting.

Committee member: Please comment on issues that particularly need improvement.
Was the presentation thorough and understandable?

Does the student have the appropriate command of the literature?

Have at least some experiments been done thoroughly and finished?

Do individual experiments appear to be well planned with appropriate controls?

Does the student understand the limits of his/her experiments?

Is the dissertation project feasible in a reasonable period of time?

Are the student’s responses to the questions clear and to the point?

Is the student applying personal initiative to the project?

Additional comments:

Committee Member Name:
Overall Evaluation of research progress (Please circle):

U  Unsatisfactory
S  Satisfactory for this point in the program
E  Excellent

After each committee member has completed the evaluation, the student should collect the evaluations, review them with his/her supervising professor and then make two copies. One copy should be kept by the student; one copy should be given to the Academic Program Coordinator for inclusion in the student’s file and the originals should be forwarded to the Track Student Advisor.
Department of Cellular and Structural Biology Graduate Program
Evaluation by the Committee Members - Fourth Year Ph.D. Student

Student Name:
Month/Year Started Program:
Date of Meeting:
Has preliminary exam been taken?
Has dissertation proposal been approved?

Written progress:
  Presented a paper or poster at national meeting?  
  Contributed to writing a paper or review?  
  Authored his/her own paper?  

The student should complete the information above and distribute forms to faculty at his/her scheduled committee meeting.

Committee member: Please comment on issues that particularly need improvement.

Was the presentation done well?

Is the work sufficiently thorough, timely, and valid to form the basis for publication?

Is the student adequately focused on a specific plan for finishing the dissertation?

Has the student thoroughly considered the meaning of his/her results?

Is the student's depth of knowledge and facility to deal with problems characteristic of an expert in his/her chosen field?

Additional comments:

______________________________
Committee Member Name:

Overall Evaluation of research progress (Please circle):

U  Unsatisfactory
S  Satisfactory for this point in the program
E  Excellent

After each committee member has completed the evaluation, the student should collect the evaluations, review them with his/her supervising professor and then make two copies. One copy should be kept by the student; one copy should be given to the Academic Program Coordinator for inclusion in the student's file and the originals should be forwarded to the Track Student Advisor.
Department of Cellular and Structural Biology Graduate Program
Evaluation by the Committee Members - Fifth (or beyond) Year Ph.D. Student

Student Name:
Month/Year Started Program:
Date of Meeting:
Has preliminary exam been taken?
Has dissertation proposal been approved?
Written progress:  Presented a paper or poster at national meeting?  _____
  Contributed to writing a paper or review?  _____
  Authored his/her own paper?  _____
  Target date for graduation:  _____

The student should complete the information above and distribute forms to faculty at his/her scheduled committee meeting.

Committee member: Please comment on issues that particularly need improvement.
Was the presentation done well?

Is the work sufficiently thorough, timely, and valid to form a basis for publication?

Is the student adequately focused on a specific plan for finishing the dissertation?

Is the student's depth of knowledge and facility to deal with problems characteristic of an expert in his/her chosen field?

Is the student likely to graduate by the target date listed above?

Additional comments:

Committee Member Name:
Overall Evaluation of research progress (Please circle):

U  Unsatisfactory
S  Satisfactory for this point in the program
E  Excellent

After each committee member has completed the evaluation, the student should collect the evaluations, review them with his/her supervising professor and then make two copies. One copy should be kept by the student; one copy should be given to the Academic Program Coordinator for inclusion in the student's file and the originals should be forwarded to the Track Student Advisor.
Attachment H

Format for the Dissertation Proposal

All Ph.D. students in the Cellular and Structural Biology Graduate Program are required to write and defend a Dissertation Proposal. It should be written in the format of an NIH-postdoctoral grant application (NIH form SF424_RR; Rev 6/2009) having a limit of 1 single-spaced page (not less than 11 font) to describe the Specific Aims and 6 pages for the Research Strategy including Significance, Background and Approach (including figures and tables). The section on Literature Citations is not included in the page limit, but it should not exceed two pages. The specifics of the Dissertation Proposal will be determined by the track.

Note: The format for the written part of the Qualifying Examination and the Dissertation Proposal are identical, however there can be no overlap in topics.
Format for the Thesis Proposal

All M.S. students in the Cellular and Structural Biology Graduate Program are required to write and defend a Thesis Proposal. The thesis proposal should be written in the format of an NIH-postdoctoral grant application (NIH form SF424_RR; Rev 6/2009) having a limit of 1 single-spaced page (not less than 11 font) to describe the Specific Aims and 6 pages for the Research Strategy including Significance, Background and Approach (including figures and tables). The section on Literature Citations is not included in the page limit, but it should not exceed two pages.
SCHEDULING FOR FINAL ORAL EXAMINATIONS AND BINDING OF DISSERTATIONS AND THESES

There are certain procedures that must be followed for a student to complete in any given semester. The following is a suggested schedule for completion of the dissertation or thesis:

**Step 1.** Submit to the Supervising Professor and Supervising Committee a final draft of the Dissertation or Thesis. Allow 3 weeks for review and comments.

**Step 2.** Email Dr. Sophia Pina (pina@uthscsa.edu) a final electronic draft in pdf format of the Dissertation or Thesis. Allow three weeks for review and comments.

**Step 3.** Submit the following to Janice Stong in the Graduate Dean’s Office 15 days before the scheduled date of the final oral examination.

- *Form 40: Request for Final Oral Examination*
  

- *3 copies of the abstract and vita*

**Note:** For the final Oral Examination, a room should be reserved by the department’s academic or COGS coordinator.

Allow sufficient time between the Final Oral Examination and the Graduate Faculty Council meeting, to complete any content or formatting changes or corrections to the Dissertation or Thesis that are required by the Supervising Committee, Committee on Graduate Studies or Dean’s Office.

**Step 4.** Submit the following to Janice Stong in the Graduate Dean’s Office **7 days** prior to the Graduate Faculty Council meeting:

- *Form 41 for MS or Form 43 for PhD: Report on Final Oral Examination (signed by all members of the Supervising Committee and Chair of COGS).*
  
  

- *Approval Page taken from Dissertation/Thesis signed by Supervising Committee and COGS Chair.*

**Step 5.** The outcome of the final oral examination and fulfillment of degree requirements must be reported to and approved by the Graduate Faculty Council at its monthly meeting. The Graduate Faculty Council meets on the second Friday of each month.

Following approval of your dissertation/thesis by the Graduate Faculty Council, and prior to leaving this institution, the following forms can be found at the GSBS website [http://gradschool.toolbox.net/students/studentresources/current](http://gradschool.toolbox.net/students/studentresources/current) and should be submitted to Janice Stong:

Graduation Forms, Master of Science

[Copyright Disclaimer](#)

[Forwarding Address Form](#)

[Library Copyright Permission](#)

[Listing Of Schools](#)
Graduation Forms, Doctoral

Copyright Disclaimer

Forwarding Address Form

Library Copyright Permission

Listing Of Schools

Survey Of Earned Doctorates

**Step 6.** Binding instructions. A Memorandum for Binding can be obtained from The Academic Program Coordinator. This memo along with the correct number of dissertations/theses (printing on cotton paper is optional) are taken directly to the UTHSCSA library for binding and payment. The UTHSCSA library will not make copies from your electronic dissertation/thesis. Payment can be made by cash, check or credit card to the UTHSCSA library.
This form must be signed by all local members of your Thesis Committee.

The member of the committee who is located outside of the Health Science Center need not sign below, but he/she should be sent a copy of the proposal once it is approved by COGS.

We, the members of the Thesis Committee of ____________________________, have seen, read, and approved her/his Thesis Proposal. We agree that it is ready for presentation to the Committee on Graduate Studies of the Cellular and Structural Biology Program.

(Mentor)

(Member, C&SB)

(Member, C&SB)

(Member, C&SB - optional)

(Member, Outside C&SB)
GSBS Form 31: Petition for Admission to Candidacy for the degree of Master of Science

GSBS Form 42: Composition of Supervising Committee – Master of Science Degree

GSBS Form 40: Request for Final Defense and Oral Examination

GSBS Form 41: Report on Final Oral Examination – Master of Science

GSBS Form 32: Petition for Admission to Candidacy for the degree of Doctor of Philosophy

GSBS Form 30: Recommendation for Approval of Dissertation Research Proposal and Supervising Committee

GSBS Form 43: Report on Final Oral Examination – Doctor of Philosophy
Pre-doctoral training entails both formal education in advanced scientific knowledge and theory as well as research training under the supervision of one or more investigators who are qualified to fulfill the responsibilities of a mentor. A positive mentoring relationship between the pre-doctoral student and the supervising professor is a vital component of the student's preparation for a successful biomedical career.

Individuals who pursue a biomedical graduate degree are expected to take responsibility for their own scientific and professional development. Faculty who advise students are expected to fulfill the responsibilities of a mentor, including the provision of scientific training, guidance, instruction in the responsible conduct of research and research ethics, and financial support.

This compact offers a set of guiding principles intended to promote and support the development of a positive mentoring relationship between the pre-doctoral student and his/her supervising professor(s). For MS students, this compact should also include the completed program-specific individualized Milestone Agreement Form. As mandated by the U.T. System, the individualized Milestone Agreement Form should be in an electronic form consistent with Family Educational Rights and Privacy Act (FERPA) and provided by the program for the purpose of informing students about the milestones that they are expected to reach to earn a MS.

When students have selected a supervising professor, students should have discussed with their mentor each of the topics listed on pages 2 – 4 and submitted the form to the COGS chair. To tailor an individualized compact best suited for each student and mentor, specific commitments by both the student and the mentor, detailed processes, additions and specifications should either be added in the space below each topic or in an addendum as deemed appropriate.

With their signature, both the mentor and the students confirm that all topics listed have been discussed and they are committed to uphold the principles agreed upon in this individualized compact. Once approved by COGS, the compact will be placed in the student’s file held in the department’s office.

It is understood that various aspects of the student’s pursuit of their degree can change over time and therefore the compact should be reviewed regularly (at least once a year) and modified as needed. The Milestone Agreement Form is to be updated annually.

April 29, 2013
DEFINING STUDENT AND MENTOR RESPONSIBILITIES AND EXPECTATIONS

**Frequency and Methods of Communication between Mentor and Student** (How often will student and mentor meet? How should updates or changes in expectations and issues be communicated?)

**Research/Training Related and Professional Development of the Student** (What is the student’s project? Is there a specific person that will oversee training other than the PI and to what degree will the student assist with other projects in the lab? What constitutes professional development?)

**Common Laboratory Responsibilities** (Which tasks and duties are shared among all lab members, including the student?)

**Notebooks and Data** (What is the policy of the laboratory related to the storage of data and laboratory notebooks?)

**Work Hours/Attendance in the Laboratory** (How many hours per week is the student expected to work in the laboratory?)
Authorship Policies (What is the policy that constitutes authorship in the lab? How is the order of authors determined in a manuscript or abstract?)

Manuscripts expected for Graduation (Are there specific expectations for the number of manuscripts (published, submitted and/or in preparation), and the student’s authorship position (e.g. first) on these manuscripts, required for the student to graduate?)

Intellectual Policy Issues: Disclosure, Patent Rights and Publishing Research Discoveries (What is the policy for patents that come out of the student’s work?)

Selection of a Thesis/Dissertation Committee (What is the process for determining the subject of the thesis and the composition of the thesis committee?)

Attendance of Professional and Scientific Meetings (Under which conditions can a student travel to a Regional, National, or International scientific meeting? For example, only if the student or student’s work is presenting? Who covers the cost and what will be covered?)
Career and Professional Development / Job Search and Placement / Individualized Career Development Plan (What is the career choice of the student and what arrangements can be made to allow the student to participate in courses, workshops, etc. for their particular interests without compromising their research training?)

Time off for Illness or University Holidays – Vacation Policy (HOP 4.3.5; 4.7.14) (What is the laboratory policy for vacations, holidays, and personal days?)

Conflict Resolution and Student Complaint Policies (refer to Student Catalogues; GSBS website)

Additional Topics
Milestone Agreement Form

(insert the approved Milestone Agreement for the student’s program)
We have discussed all the above topics and made the mutually agreed upon additions, specifications and changes.

We acknowledge our joint intention to re-evaluate the compact, the agreed upon milestones and the degree completion date at least once a year throughout the student’s period of academic standing.

____________________________________________________
Student’s Name

____________________________________________________
Signature of Student Date

____________________________________________________
Supervising Professor’s Name

____________________________________________________
Signature of Supervising Professor Date

This compact has been adapted from the UT System Health Institutions Compact Between Graduate Students and Their Research Advisors and the AAMC’s Compact Between Biomedical Graduate Students and Their Research Advisors (December 2008).

April 29, 2013