GRADUATE
SCHOOL
OF BIOMEDICAL SCIENCES

Catalog
Academic Year 2025-2026

Catalog
Academic Year 2025-2026

Baylor College of Medicine's Mission, Vision and Values

College's Mission

Baylor College of Medicine is a health sciences university that creates knowledge and applies science and discoveries to further education, healthcare and community service locally and globally.

College's Vision

Improving health through science, scholarship and innovation

College's Values

Respect
- Value others and treat them with courtesy, politeness and kindness
- Encourage civil dialogue that considers diverse opinions and ideas

Integrity
- Interact with honesty, consistency and transparency
- Operate in ways that demonstrate ethical behaviors
- Foster personal accountability to build trust

Innovation
- Cultivate creative ideas and unique talents across the organization
- Embrace a culture of continuous improvement
- Inspire the creation and application of new knowledge

Teamwork
- Sustain a culture that values collaboration
- Communicate openly to enhance understanding
- Establish effective partnerships

Excellence
- Promote the highest standards of safety, quality and service
- Strive to excel in every aspect of our mission
- Support an environment that inspires the best from our people

Baylor College of Medicine

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Baylor College of Medicine is committed to a safe and supportive learning and working environment for its learners, faculty and staff. College policy prohibits discrimination on the basis of race, color, age, religion, gender, gender identity or expression, sexual orientation, national origin, veteran status, disability or genetic information. Harassment based on any of these classifications is a form of discrimination and also violates College policy (02.2.25, 02.2.26) and will not be tolerated. In some circumstances, such discriminatory harassment also may violate federal, state or local law.

Baylor is committed to recruiting and retaining outstanding students, trainees, faculty and staff from a broad range of backgrounds and provides a welcoming, supportive learning environment for all members of the Baylor community.

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GRADUATE SCHOOL OF BIOMEDICAL SCIENCES

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Our Mission

The Graduate School of Biomedical Sciences at Baylor College of Medicine (BCM) is dedicated to providing a rigorous and stimulating research and training environment for qualified PhD. and Masters level candidates in the biomedical sciences. Outstanding PhD, Masters and MD./PhD. students provide the intellectual capital needed to advance the research and educational mission of the college and to provide a new generation of scientific leaders. The faculty is committed to excellence in interdisciplinary research training for students whose intellectual contributions will continue to fill the reservoir of fundamental knowledge needed to conquer disease and promote health and wellbeing for all people.

Description of Program

The Graduate School of Biomedical Science (GSBS) offers Doctor of Philosophy (Ph.D.) degrees in seven distinct specialties and a Master of Science (M.S.) degree in biomedical sciences, as well as M.S. & Ph.D. degrees in a Clinical Investigation. The GSBS also partners with the School of Medicine on a dual-degree Medical Scientist Training Program (M.D./Ph.D.). Certificates of added qualification are available in clinical translational research, biomedical education, and clinical investigation, in addition to a post-baccalaureate certificate in biomedical sciences and health equity.

Students and faculty will adhere to the policies, procedures, and guidelines referenced within this Catalog.

Course Catalogs include an overview of BCM's health sciences mission and values (e.g., preamble), student handbooks (which detail expectations of students and obligations of the institution), course descriptions, and degree requirements for each academic year that are generated by, and specific to each BCM school and its corresponding academic program(s).

Five years of archived catalogs are available online at www.bcm.edu/registrar

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POLICY HANDBOOK

Graduate School of Biomedical Sciences

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Revised: 11/13/96; 01/13/97; 08/01/97; 08/29/97; 10/30/97; 04/15/98; 06/12/98; 06/23/99; 11/11/99; 02/04/00; 06/23/00; 08/30/01; 11/16/01; 01/25/02; 04/26/02, 06/26/02; 11/15/02; 04/22/03; 11/21/03; 01/14/04; 03/13/04; 08/24/04; 06/14/05; 08/15/06; 04/13/06; 06/15/06; 11/02/06; 04/05/07; 06/14/07; 11/08/07; 02/07/08; 06/16/08; 08/03/09; 08/02/10; 08/01/11; 02/29/12; 07/30/12; 09/04/12; 01/16/13; 07/14/14; 08/21/14; 01/29/15; 04/08/15; 06/18/15; 08/24/15; 08/27/15; 08/01/16; 07/30/18, 08/16/19, 11/25/19, 08/01/20; 07/01/21; 07/01/22; 07/01/23; 07/01/24; 07/01/25

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While every effort has been made to verify the accuracy of information in this publication, BCM reserves the freedom to change without notice admission and degree regulations, tuition, fees, and any other information published herein.
This publication is not to be regarded as a contract.

ARTICLE 1. ADMINISTRATION

1.1 The Graduate School of Biomedical Sciences

Training leading to the PhD degree in the biomedical sciences is an integral component of BCM. The Graduate School of Biomedical Sciences is a division within the College whose activities complement and are closely coordinated with those of the School of Medicine.

1.1.1 Mission Statement

The Graduate School of Biomedical Sciences at Baylor College of Medicine (BCM) is dedicated to providing a rigorous and stimulating research and training environment for qualified PhD. and Masters level candidates in the biomedical sciences. Outstanding PhD, Masters and MD./PhD. students provide the intellectual capital needed to advance the research and educational mission of the college and to provide a new generation of scientific leaders. The faculty is committed to excellence in interdisciplinary research training for students whose intellectual contributions will continue to fill the reservoir of fundamental knowledge needed to conquer disease and promote health and well-being for all people.

1.1.2 Accreditation

Baylor College of Medicine is accredited by the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) to award master and doctorate degrees. Questions about the accreditation of Baylor College of Medicine may be directed in writing to the Southern Association of Colleges and Schools Commission on Colleges at 1866 Southern Lane, Decatur, GA 30033-4097, by calling (404) 679-4500, or by using information available on SACSCOC's website (www.sacscoc.org).

1.2 Dean (Revised 08/01/11, 07/01/21)

The Dean of the Graduate School is the administrative head of the Graduate School, and is responsible for all programs within the Graduate School. The Dean, and only the Dean, may make exceptions to any of the policies of the Graduate School. The Dean will bring significant or recurring minor policy exceptions to the attention of the Policy Committee and the Graduate Executive Council. The Dean receives and reviews Graduate School Committee recommendations that may be implemented after approval by the Dean. The Dean will provide leadership for the ongoing development, implementation, and evaluation for education and other programs within the Graduate School. The Dean will: 1) coordinate the activities of other GSBS deans and lead in the development of new initiatives; 2) chair the Policy Committee; 3) serve as the representative of the Graduate School to the Academic Council; and 4) chair the Executive Council.

1.3 Senior Associate Dean for Graduate Education and Academic Program Development

(New 8/24/15)

The Sr. Associate Dean for Graduate Education and Academic Program Development provides collaborative leadership ensuring integrity, quality and student success around a range of activities including Program development, curriculum, outcomes assessment, Programmatic accreditation and faculty development. This role involves active engagement in policy implementation and compliance, strategic planning and day-to-day problem solving. This position requires ongoing communication with graduate school staff, Program directors, graduate school teaching faculty, major advisors and the Dean. The Sr. Associate Dean will: 1) Support Program directors and faculty course directors in the implementation of activities associated with new and revised Program curriculum 2) Act on behalf of the Dean in the Dean's absence on matters related to the graduate school and its Programs etc.

1.4 Assistant Dean for Curriculum (New 08/01/11; retired 07/01/21)

1.5 Assistant Dean for Postdoctoral Research and Career Development (New 08/01/11, retired 07/01/21)

1.6 Faculty (Revised 04/26/02, 08/16/19)

The Graduate Faculty shall consist of those faculty who play an active role in the education and training of BCM graduate students through teaching, supervision of research, and other supporting activities, including recruitment, evaluation and Committee participation. Graduate Faculty serving solely in an Educator role (e.g. not serving as a major thesis advisor) must be members of the BCM faculty. Graduate faculty eligible to serve as Major Advisors for research students are faculty of BCM or other academic institutions that meet qualifications for membership (defined in 1.6.1).

1.6.1 Criteria for Appointment to the Graduate Faculty (Revised 04/26/02, 03/31/04, 07/30/12, 04/06/18, 08/16/19, 07/01/24, 07/01/25)

All BCM faculty that meet qualifications for membership in its Graduate Programs are eligible for consideration for appointment to the Graduate Faculty. An appointee must hold a terminal degree (e.g. the PhD or M.D degree, or its foreign equivalent) and be nominated for membership by one or more Graduate Programs. Faculty must be resident in their home institutions at least 9 months each year. Graduate Faculty must complete mentor training, based on evidence-based practices, with a minimum frequency of once every five years. Initial training requires at least three hours of training. Subsequently, a minimum of one hour of mentor training is required every five years. For faculty new to BCM, mentor training must occur within the first year of Graduate Faculty membership. Faculty may accept rotation students during this time.

Requests for appointment to the Graduate Faculty and to the faculty of an individual Graduate Program are made by the Graduate Program Director. Following satisfactory review by the Graduate Faculty Membership Committee, appointment to the Graduate Faculty is made by the Dean.

Application for initial appointment to the Graduate Faculty must be accompanied by a nomination from the Program Director, a recommendation letter from the BCM faculty member's Chair or Center Director and a current CV in BCM format. Application of a current member of the Graduate Faculty for membership in an additional Graduate Program requires evidence of current mentor training and must be accompanied by a nomination from the Program Director. Assistant Professors can be appointed to two active graduate programs while Associate Professors and above can be appointed to a third active graduate program. The request for appointment to the Graduate Faculty denotes the faculty's consent to abide by the policies established by the Graduate School and the Graduate Program. Appointment to the Graduate Faculty and membership in a Graduate Program comes with reasonable expectations of service to the Graduate School and Graduate Program as outlined in Section 1.6.2.

1.6.2 Duties of the Graduate Faculty (Revised 04/26/02, 08/16/19)

In addition to the duties defined by BCM for its full-time faculty, Graduate Faculty members are expected to perform specialized duties unique to graduate training. Foremost among these, for faculty eligible to serve as Major Advisors, is participation in ongoing research in biomedical science, principally providing research opportunities to PhD. trainees. Other duties for Major Advisors and Educators include teaching and extramural service activities. Teaching experience may include a number of activities in addition to formal classroom participation, such as participating in research seminars, serving as a member of student TACs within the Graduate School or as a preceptor for student journal clubs and discussion groups, and participating in Program and School-wide academic Committees. Faculty participation in community activities shall be undertaken as directed by the Department or Program Chair. Summer research training

outreach activities for secondary school and undergraduate students are acknowledged valuable responsibilities of full-time faculty of the College and constitute evidence of continued community service. Assignments of these activities are reviewed annually by each Graduate Program to ensure equitable distribution of responsibilities and excellence of academic purpose and training.

1.6.3 Major Advisor (also see 9.2.1) (Revised 04/26/02, 08/16/19, 07/01/25)

Membership in the Graduate Faculty is a requirement for service as a Major Advisor. Effective August 1, 2025, Graduate Faculty must have completed mentor training requirements within the last 5 years (see Section 1.6.1) to become a Major Advisor for a PhD student.

In addition, the faculty member must show evidence of being an established principal investigator with sources of research space and financial support, undertaking an independent Program in biomedical research. The Major Advisor is required to assume financial responsibility for the student at stipend levels set by the Graduate School and health insurance during his/her tenure in the faculty member's laboratory. The Major Advisor must demonstrate that sufficient research, stipend and health insurance financial resources are available on an annual basis. The Advisor must notify the Program Director in advance of funds termination that may jeopardize the continued participation of a student in the laboratory.

The Major Advisor is responsible for monitoring student time commitment as defined in Section 1.8.4. It is the duty of the Major Advisor to maintain and guide the student's satisfactory steady progress toward the degree and to ensure that the student becomes a well-educated, productive research scientist.

1.7 Graduate Programs (Revised 08/01/16, 07/01/21, 07/01/22)

Graduate Programs are specialized autonomous training units within the Graduate School. Graduate Programs may be formed by faculty from multiple academic units for the purpose of offering training in a scholarly discipline of common interest. Faculty within such programs assemble a plan for the purpose of recruiting, and training graduate students toward the MS or PhD degree. Graduate Programs must develop and maintain a detailed plan for classroom, research, and enrichment instruction that complies with the academic policies and procedures of the Graduate School. A new Graduate Program may receive approval from the Executive Council upon the recommendation of the Curriculum Committee. Creation of new programs must comply with the BCM Academic Program Approval Policy (Section 30.1.02).

Once a graduate program no longer accepts new students, it is termed a ‘legacy’ program. Within 3 years of no longer accepting new students, arrangements must be made to associate the legacy program with an active program that accepts new students. The director of the legacy program will become an associate director of the active program, retaining academic oversight of students in the legacy program and promoting integration of legacy students into the community of the active program. This associate director role in the active program will continue until there are no students remaining in the legacy program.

1.7.1 Program Director (Revised 07/01/21)

The Program Director is a full-time BCM faculty member nominated by the Program Executive Committee and appointed by the Dean. The Program Director is a member of the Graduate School Executive Council. The Program Director oversees and coordinates the Graduate Program with the aid of the Program Executive Committee. The responsibilities of the Program Director, either directly or via a designee, include: 1) Designing and implementing an effective recruitment process in collaboration with the Graduate School and making recommendations to the Central Admissions Committee; 2) Acting as major advisor to graduate students until the major advisor is appointed, and continuing to advise graduate students throughout their training; 3) Assisting the Graduate School in monitoring the student's progress toward the degree and recommending action to the Promotions Committee regarding alterations to the degree plan or other academic matters; 4) Making recommendations to the Dean regarding establishment of TACs, scheduling and

administering of Qualifying Examinations, defense of dissertations, leaves of absence, withdrawals, and awarding the degree; 5) Transmitting information and administrative forms to the Graduate School office; 6) Transmitting information from the Graduate School to the graduate students and program faculty; 7) Advising Graduate Program faculty; and 8) Overseeing Program curriculum and other training activities. The Program Director reports directly to the Graduate School Dean. The Program Director may appoint Associate Directors to assist with program activities.

1.8 Student Membership in Academic Entities

A full-time graduate student is a member of either two or three academic entities, depending upon his or her level of progression to the PhD degree.

1.8.1 Membership in the Graduate School of Biomedical Sciences

Upon enrollment, a student becomes a member of the Graduate School of Biomedical Sciences and is subject to the rules defined herein. Continued enrollment shall require satisfactory performance. Dismissal shall be done only by the Dean, upon recommendation of the Promotions Committee and appropriate appeal procedures as described in this Policy Book.

1.8.2 Membership in a PhD Program (Revised 07/01/22)

Entry into a PhD Program shall make the student a member of that entity. The Program may impose additional policies and performance criteria that strengthen or modify the overall policies of the Graduate School, but those policies may not diminish nor eliminate any academic requirements. Membership in a PhD Program and continuation of any established financial support shall continue provided that the student is in good academic standing and is making satisfactory academic progress toward the degree. The latter criteria include punctual performance of administrative tasks such as choosing a major advisor, appointing a TAC, choosing a scientific research project acceptable to that Committee, and completing required academic documents (such as status reports, Committee meetings and the dissertation) within specified time limits as defined in the policy handbooks of the Graduate School and the Program.

Dismissal from the Program shall be done by the Program Director, following review of the student's past and current performance by a Committee appointed by the Program Director. The members of that Committee shall include at least one member of the student's TAC. A faculty member who has a conflict of interest in the matter shall not serve. The Committee shall have at its disposal in making its decision all relevant information which may include: (1) a report from the student's TAC explaining the cause(s) for recommending dismissal, (2) copies of all Graduate School transcripts of the student and of all progress reports turned in to the Graduate School by that student and (3) any additional research or academic documents it deems necessary for the proper conduct of the inquiry.

If the student wishes to continue enrollment in the Graduate School, the Graduate School shall provide a period of no more than 8 weeks with full financial and insurance support for the student to transfer to another Program, unless that period of support has previously been granted to the student for the purpose of finding another laboratory. If unable to gain acceptance by another graduate program within 8 weeks, the student will be deemed unable to make academic progress and will be dismissed from Graduate School in accordance with GSBS Policy 6.8.1.

1.8.3 Membership in a Major Advisor's Laboratory (Revised 03/31/04, 08/01/11, 08/16/19, 8/1/20, 07/01/25)

A student shall choose a Major Advisor by mutual agreement subject to Graduate Program approval (also see 9.2.1). Membership in a laboratory is a privilege; during the student's traineeship time in that laboratory, the student and major advisor are expected to conduct science

and scholarship according to high ethical principles as defined for faculty members in the BCM Faculty Handbook, and the Research Ethics standards defined in the BCM Administrative Guide. Continued membership in the major advisor's laboratory shall be assumed, unless unforeseen circumstances occur. Those circumstances include (1) loss of funding by the faculty member for the conduct of the research; (2) academic or scientific misconduct by the student or advisor, causing dissolution of the bond of trust between student and faculty member; or (3) other disagreements which break that bond of trust.

Major advisors and their students should work to construct a mutually agreeable set of expectations for the relationship, including time spent in research activities in the laboratory or other locations. However, in the case that a major advisor or student wishes to terminate the student's membership in the major advisor's lab, the initiating party (student or major advisor) must contact the Program Director. In the case that the Program Director is the student's major advisor, the program's Associate Director or a member of the program's Program Executive Committee (PEC) shall fulfill the role of the Program Director. The Program Director will review the circumstances in separate meetings with both the major advisor and student to determine whether differences between the student and major advisor can be resolved. The Program Director, at his/her discretion, may utilize the Thesis Advisory Committee as a resource or request a joint meeting between the two parties.

The Request to Leave Laboratory Form will be completed and signed by the Program Director, co-signed by the major advisor, student and the student's Committee and sent to the Graduate School for approval. The effective date for leaving the laboratory will be the effective date indicated on the form. The request to leave a laboratory must also contain a signed agreement between the major advisor and student concerning the student's authorship status on any publications resulting from the student's work while in the laboratory. Decisions regarding authorship should be made in accord with the BCM Policy on Authorship (Section 02.9.40) and in the spirit of the Authorship Policy of the Graduate School (Section 9.12). After termination of the student-mentor relationship, the Program Director shall assume the temporary duties of advisor, and shall intercede actively to assist the student in finding a new Major Advisor.

If the action is initiated by the major advisor, the major advisor must provide the student at least 4 weeks of financial and insurance support following the official termination date of membership in the laboratory. Terminating the membership of a student in a laboratory does not constitute discharge from the Program. If the student wishes to continue enrollment, the Graduate School is obligated to provide an additional period for a maximum of 8 weeks in total of financial and insurance support for the student to find another laboratory or to transfer Programs.

1.8.4 Effort Required for Satisfactory Progress Towards Degree (New 08/16/19)

Students are expected to attend academic activities and/or conduct research daily, Monday-Friday, unless prior arrangements are made with their Major Advisor and/or Program Director. An absence that has not been approved in advance is considered 'unexcused'. Approval for absences must be obtained in advance from the student's Major Advisor, or Program Director if the student does not have a Major Advisor. In the event of an absence due to illness, the student should immediately notify the Major Advisor or Program Director. In the event of an emergency or extreme illness, the student should ask a representative to contact the Major Advisor or Program Director on the student's behalf. In the case of special or unforeseeable circumstances (such as a natural disaster or flood), the Dean may provide an exception to these attendance or absence approval requirements.

Major Advisors must notify the student's Program Director if their student has an unexcused absence of greater than three successive business days. Students with unexcused absences of more than 5 successive business days may be placed on Administrative Leave of Absence with attendant

loss of financial support until such time that the student returns to their academic and research activities.

1.9 Student Interest Groups (New 07/30/12, Revised 8/24/15, 08/01/16, 07/01/22)

Official student interest groups may be designated by the Dean upon the request of the Graduate Student Council or Postdoctoral Association. The designation as a recognized trainee interest group entitles the group to develop content for the Graduate School Student Organizations web page and to use BCM and its logo in publicizing their activities. Interest groups must abide by all College policies concerning use of the BCM name, logo, and internet/social media, as well as the GSBS Student Organization Handbook.

BCM students or student groups may from time to time invite outside speakers to address BCM functions. Outside speakers must be approved in advance by the Dean or designee. The names and credentials of proposed speakers, purpose of the presentation, and proposals for any costs such as travel, expenses, and honoraria, must be presented to the Dean or designee for review and approval at least three weeks prior to the event. All outside speakers will be required to meet the professional standards expected of BCM faculty, with evidence based presentations when applicable and complete disclosure of funding and conflict of interest.

Students are required to comply with BCM Fundraising Policies (Section 17.1.03) and Student/Trainee Fundraising Project Policy (Section 17.1.07).

1.10 Evaluation (Revised 08/30/12, 08/01/20)

To improve our academic Programs, an internal self-evaluation of individual Graduate Programs and the graduate school as a whole will occur annually. The evaluation will consist of an academic planning and evaluation document that sets Program learning objectives and outcome measurements for the coming year along with an analysis of the previous year's plan and student learning outcomes. Each Program will be provided with a standard set of outcome measurements including student performance in the first-year curriculum, qualifying exam performance, student retention, and publications.

Individual teaching evaluations by students enrolled in each didactic/6000- level course offered by the graduate school will be conducted at the end of each term. The evaluations of the course and individual instructors will be provided to the course director to help formulate changes in the course for next year. Each instructor will be provided with a copy of the overall course evaluation and their own teaching evaluations. Teaching evaluations will be considered by the Curriculum Committee during its periodic evaluation of the curriculum (section 2.43), and every five years, in preparation for an external review, the Curriculum Committee will evaluate the curriculum of each Program along with the utilization of the core curriculum with respect to content and quality.

Every five years, an external evaluation Committee composed of scientists involved in graduate education will be appointed by the President of the College to conduct a comprehensive evaluation of the graduate school as a whole along with individual Graduate Programs.

ARTICLE 2. STANDING COMMITTEES (Revised 01/16/04, 08/23/04, 07/14/14, 08/16/19)

The standing Committees of the Graduate School are appointed by the Dean of the Graduate School. The Committees include the Graduate Executive Council, Admissions, Appeals, Curriculum, Graduate Faculty Membership, Promotions, Policy and Graduate Student Council. Students serving on any Graduate School Committee must have the approval of their major advisor and Program Director and must be in good academic standing. *Ex officio* members may be included on any Committee with the approval of the Dean and/or be invited to attend meetings as guests of the Executive Council. A simple majority of the members of a Committee constitutes a quorum. Only duly appointed members may vote; proxy members may vote

with authorization from the Program. Students serve for a period of one two-year term. Recommendations by the standing Committees will be forwarded to the Dean for final decision.

2.1 Graduate Executive Council (Revised 08/01/11, 07/14/14)

The Executive Council voting membership is composed of the Dean (who chairs the Council), Assistant and Associate Deans, Graduate Program Directors, Director of the MD/PhD Program, Chairs of the Graduate School standing Committees, President and Vice President of the Student Council, President and Vice President of the Postdoctoral Association, and Chair of the Graduate Program Administrators Group. Meetings are held once per term (approximately every 10 weeks). This Committee is responsible for academic affairs and policies of the Graduate School, and together with the Dean, this Committee advises the President of the College on Graduate School matters. The Executive Council broadly and actively considers the policies of the Graduate School. Standing Committees of the Graduate School report to the Executive Council for ratification of decisions. The Executive Council may, on its own initiative, consider matters of interest to the Graduate School.

2.2 Admissions Committee (Revised 07/14/14, 06/18/15, 07/01/22)

The Admissions Committee is composed of at least six faculty members appointed by the Dean and two Student Council representatives. The chair and vice-chair are appointed by the Dean and the vice-chair is expected to become the chair. Faculty members may not be Graduate Program Directors, department Chairs, division heads, or Center Directors. Faculty members of this Committee serve for three years, and may be recommended for re-appointment by the Dean. Student members serve for one two-year term with staggering starting years. The Admissions Committee considers applications from all Graduate Programs and recommends acceptance of qualified applicants to the Dean.

2.2.1 Admission Committee Conflict of Interest (New 01/29/15, 06/18/15, 08/16/19)

Decisions by any GSBS Admissions Committee regarding student applicants must be free from intimidation and not influenced by any political, financial or other outside factors. Members of the Committee must immediately report a real or perceived conflict of interest to the GSBS Dean or designee and/or a faculty Chair(s) of the Admissions Committee. A conflict of interest is determined to exist, without limitation, in instances where the Committee member:

1. Has an Immediate Family or Extended Family relationship to the applicant; or
2. Is or has been in a significant teaching, social or personal relationship with the applicant or a member of the applicant's immediate or extended family; or
3. Has a business or financial relationship with the applicant or a member of the applicant's immediate or extended family.

If a Committee member meets any of these criteria, the Committee member must recuse him/herself from participation in any evaluation, discussion or deliberation of such applicant.

A Committee member must report a real/perceived conflict of interest immediately upon learning of the identity of the applicant creating the real/perceived conflict of interest. In the event of doubt as to the existence of a conflict of interest, the Committee member should err on the side of reporting relevant facts to the GSBS Dean or designee and/or faculty Chair(s) of the School or Program Admissions Committee. Any Committee member may raise the issue of a real/perceived conflict of interest with respect to an applicant and any other Committee member. Failure to report a real or perceived conflict of interest may result in the Committee member's removal from the admissions Committee. The GSBS Dean or designee shall make the determination of the existence of a real/perceived conflict of interest after reviewing relevant facts. This decision is final with no option for appeal.

Annual Statement: Each Committee member shall complete and return to the Dean of the GSBS or the Dean's designee annually, and prior to participating in the applicant review process, a

conflict of interest acknowledgement. Failure to complete and return the acknowledgement form in a timely manner is grounds for removal from the Admissions Committee.

2.3 Appeals Committee (New 07/14/14; Retired 07/01/22)

2.4 Curriculum Committee (Revised 08/03/09, 09/04/12, 07/14/14, 07/01/22)

The Curriculum Committee is composed of two representatives from each Program, and two Student Council representatives. The chair and vice-chair are appointed by the Dean and the vice-chair is expected to become the chair. Faculty members serve for one 3-year term, but may be recommended for reappointment by the Dean. Student members serve for one 2-year term with staggering starting years. The Curriculum Committee considers proposals for new Graduate Programs and new courses, reviews the curriculum every five years, and evaluates content and quality of current courses. Course duplication and overlap are also considered by this Committee. The Curriculum Committee ensures that any course not offered during two consecutive periods is removed from the general catalog. Re-institution of a course requires approval of this Committee.

2.5 Promotions Committee (Revised 07/14/14, 08/16/19, 07/01/22)

The Promotions Committee is composed of a faculty representative of each active Program. The chair and vice-chair are appointed by the Dean and the vice-chair is expected to become the chair. Faculty members serve for one 3-year term, and may be recommended for re-appointment by the Dean. The Promotions Committee is responsible for recommending policies concerning requirements of promotion, probation, dismissal, and graduation to the Policy Committee. This Committee ensures that all Programs issue a course grade at the end of each term, regardless of overall course length and enforces policies concerning deficient academic progress and grades that result in academic warning, probation or dismissal. The Committee reviews the records of all students and evaluates course credits presented for transfer. Decisions of the Promotions Committee are reported to individual students, Program Directors, the Chair of the student's TAC, the Dean, and the Executive Council.

2.5.1 Promotions Committee Conflict of Interest (New 08/16/19)

Decisions by any BCM Promotions Committee regarding student promotion, progression, probation, dismissal or other academic action must be free from intimidation and not influenced by any political, financial or other outside factors. Members of the Committee must immediately report a real or perceived conflict of interest to the GSBS Dean or designee and/or the faculty Chair of the Promotions Committee. A conflict of interest, requiring recusal from voting and decision making is determined to exist in instances where the Committee member has:

1. an immediate Family or Extended Family relationship with the student;
2. a personal or social relationship with the student, or a member of the student's Immediate or Extended Family;
3. a business or financial relationship with the student, or a member of the student's Immediate or Extended Family;
4. graded the student in a course for which the course grade is the subject of a pending adverse action or proposed remediation plan;
5. served as the student's faculty advisor or formal Major Advisor, or other significant relationship with the student; or
6. provided healthcare services to the student.

A Committee member must report a real/perceived conflict of interest immediately upon learning of the identity of the student creating the real/perceived conflict of interest. In the event of doubt as to the existence of a conflict of interest, the Committee member should err on the side of reporting relevant facts to the GSBS Dean or designee and/or the faculty Chair of the Promotions Committee. Any Committee member may raise the issue of a real/perceived conflict of interest with respect to a student and any other Committee member. Failure to report a real or perceived

conflict of interest may result in the Committee member's removal from the Promotions Committee. The GSBS Dean shall make the determination of the existence of a real/perceived conflict of interest after reviewing relevant facts. This decision is final with no option for appeal.

Annual Statement: Each Committee member shall complete and return to the GSBS Dean, prior to participating in the Promotion Committee activities, a conflict of interest acknowledgement. Failure to complete and return the acknowledgement form in a timely manner is grounds for removal from the Promotions Committee.

2.6 Policy Committee (Revised 07/30/12, 07/14/14, 8/27/15, 8/01/16, 7/1/2022)

Policy Committee members are recommended for appointment by the Dean of the GSBS, who also serves as the chair of this Committee. The Policy Committee is composed of representatives from the Admissions, Curriculum, Graduate Faculty Membership, and Promotions Committees, other faculty appointed by the Dean, a representative Program Administrator and the President and Vice-President of the Student Council. The Committee considers new policies or revisions to existing policies, and recommends new policies or policy changes to the GSBS Executive Council. GSBS Policies are developed in accordance with the BCM Development and Approval Policy (Section 01.1.01).

2.7 Graduate Student Council (Revised 07/14/14, 08/16/19, 07/01/24)

The Graduate Student Council is composed of a president (or co-presidents) and a vice-president, two student representatives from each Graduate Program, a representative of the first-year class, and a representative of the MD/PhD Program. Council members representing programs serve for one 2-year term with elections occurring in the fifth term of each year for program membership. The representative of the first-year class serves for a single year with their election taking place in the first term. The Council is autonomously elected by and is exclusively responsible to the graduate student body. The Student Council president and vice-president are voting members of the Executive Council and the Policy Committee. Two Student council members also serve as voting members of the Curriculum and Admissions Committees.

The Council provides a forum for discussion of problems or ideas relating to life as a BCM graduate student. They serve as a liaison between the student body, the GSBS administration and other BCM student bodies to maintain open communication and to promote understanding. The Council organizes and hosts the annual Graduate Student Research Symposium and assists the Dean with the planning of orientation for incoming students. The Council meets once every month to review each of its subcommittee's recent findings or upcoming events, and discuss any current issues. All GSC members are required to attend 8 out of the 12 GSC meeting each year; exceptions can be granted by the GSC President or Vice-President. Minutes of all Council meetings are recorded and distributed to the Dean.

2.8 Graduate Faculty Membership Committee (New 08/16/19)

The Graduate Faculty Membership Committee is composed of seven members of the Graduate Faculty nominated by the Dean. Faculty members serve for one 3-year term, but may be recommended for reappointment by the Dean. The Graduate Faculty Membership Committee considers applications for membership in the Graduate Faculty following criteria outlined in Section 1.6.1 (Criteria for Appointment to the Graduate Faculty), and makes recommendations for appointments to the Dean.

ARTICLE 3. ADMISSION

3.1 Academic Requirements (Revised 01/25/02, 06/21/02, 08/16/19)

An applicant must hold a bachelor's or more advanced degree or be in the final stages of a Program leading to a bachelor's degree or equivalent. An official transcript verifying the degree will be required at matriculation. The following undergraduate courses are recommended but not required: Biology, Organic

Chemistry, Biochemistry, Mathematics (calculus preferred) and Physics. Most applicants have an overall grade point average greater than 3.0 (where 4.0 = A), with grades of B or better in courses relevant to his/her field of study. Questions about specific aspects of the curriculum or recommended undergraduate courses should be addressed to the specific Program to which the applicant is applying.

The Graduate Record Examination (GRE) is not required. Foreign applicants for whom their prior baccalaureate or higher education was not in English, must demonstrate proficiency in spoken and written English through obtaining a score of 90 or greater for the Test of English as a Foreign Language (TOEFL), or a score of 6.5 or greater on the International English Language Testing Service (IELTS) examination.

3.2 Non-Discrimination Policy (Revised 04/22/03)

BCM and the Graduate School of Biomedical Sciences admits students of any race, sex, sexual orientation. Color, national ethnic origin, disability or age to all the right, privileges, Programs, and activities generally accorded or made available to students at the school. It does not discriminate on the basis of race, sex, sexual orientation, color, national or ethnic origin, disability or age, in administration of its educational policies, admissions policies, scholarship and loan Programs, and other school school-administered Programs.

3.3 Student Disability Policy (New 8/27/15, 08/01/16)

BCM provides equal educational access for qualified students with disabilities in accordance with state and federal laws including the Americans with Disabilities Act of 1990, as amended in 2008, and Section 504 of the Rehabilitation Act of 1973 and the BCM Student Disability Policy (Section 23.1.07).

3.4 Acceptance of Admissions Offers (Revised 04/22/03, 8/1/20)

The BCM Graduate School of Biomedical Sciences is a member of the Council of Graduate Schools (CGS). According to the bylaws of the CGS, applicants have no obligation to accept an offer before April 15. While the BCM Graduate Programs can encourage accepted applicants to commit to an offer prior to April 15 to aid the Program in establishing the optimal entering class, the student does not have to declare before that date. The provisions of the CGS state: "Students are under no obligation to respond to offers of financial support prior to April 15; earlier deadlines for acceptance of such offers violate the intent of this Resolution. In those instances in which a student accepts an offer before April 15, and subsequently desires to withdraw that acceptance, the student may submit in writing a resignation of the appointment at any time through April 15." However, an acceptance given or left in force after April 15 commits the student not to accept another offer without first informing in writing the institution to which a commitment has been made that they are withdrawing their acceptance of an offer, prior to accepting a second offer. Similarly, an offer by an institution after April 15 is conditional on presentation by the student of the written release from any previously accepted offer. It is further agreed by the institutions and organization subscribing to this Resolution that a copy of the Resolution should accompany every scholarship, fellowship, traineeship, and assistantship offer."

3.5 Deferral of Admissions Offer (New 07/01/21, Revised 07/01/2022)

A candidate who has been made an offer of admission may request deferral of their matriculation to graduate school such that enrollment would take place at the beginning of the subsequent academic year. Requests for deferrals must be justified. Approval of a deferral request is not automatic, and requires recommendation by the graduate program to which the student applied. If approved, a deferred admissions letter issued to the student will specify the date in the next academic year by which the student must notify GSBS Admissions whether they will or will not use their option for deferred

admission. If the student does not enroll by the end of the deferral period, they must re-apply to graduate school if they desire to be admitted at a later date.

3.6 Reinstatement of Admission (New 04/13/06, Revised 08/24/15)

Students who withdraw or are dismissed for academic reasons, or who receive a terminal M.S. degree from BCM Graduate School of Biomedical Sciences must reapply for admissions before they may be reinstated as a student. A student who is dismissed on the basis of misconduct is ineligible to reapply.

3.7 Retention of Admissions Records (New 04/13/06, Revised 07/01/21)

In accordance with BCM Admissions Records Policy (Section 23.1.01), matriculant admissions records, with the exception of letters of recommendation, screening evaluations and interview evaluations will be retained as academic records and become part of the student's permanent file maintained by the Registrar. Letters of recommendation, screening evaluations and interview evaluations are retained until student enrollment, which triggers destruction of these materials. Admissions records of non-matriculants are preserved until the class for which they applied enrolls. Once the enrollment period ends, these admissions records are destroyed.

ARTICLE 4. FINANCIAL REGULATIONS

4.1 Tuition (Revised 07/01/22)

Tuition for a full-time course of study for one school year (5 terms, minimum of 12 credit hours per term) is set by the Board of Trustees. All students will be charged full tuition during their entire graduate school career. Students who are enrolled for less than the entire academic year are charged on a proportional basis in accordance with the Institutional Tuition and Fees Policy (Section 23.1.04).

4.2 Financial Assistance (Revised 11/15/02, 08/01/16, 07/01/25)

All enrolled PhD students making satisfactory academic progress toward the degree are eligible to receive financial support while active as full-time students in the Graduate School. The financial support amount and any individual exceptions are established by the Executive Council and Dean. The BCM Financial Responsibilities, Financial Aid Eligibility, and Satisfactory Academic Progress Requirements for Students policy (Section 23.1.02) outlines academic standards for financial aid eligibility. The Office of Student Financial Aid considers all applications for loans with the exception of the Emergency Loan Fund. Emergency Loans may be obtained through the Graduate School office. Students receiving financial support are responsible for their own tax returns.

4.3 Outside Employment

The first obligation of students is to their graduate studies. Students should arrange their financial affairs so that employment during the academic session should not be necessary. However, if the need arises, they should consult their Graduate Program Director.

4.4 Financial Responsibility (Revised 08/02/10)

Graduate students are expected to conduct their financial affairs in such a manner that their personal accounts and outstanding loans through the Graduate School remain current. Student fees (other than student health insurance, tuition and facilities fee) are the responsibility of the graduate student and must be paid by September 1 and February 1. For non-payment of their student fees (by the published deadlines) the student is charged a late fee by Student Account Services and a hold is placed on the student record blocking on-line registration, the posting of grades, production of transcripts and graduation. Charges for tuition and the facilities fee are cleared from the student account when scholarships are applied automatically. The Bursar processes scholarships at the beginning of each semester (in July and January).

The Dean can, at his/her discretion, discontinue tuition scholarships and/or refuse registration in those instances where there is no progress toward reducing the indebtedness.

ARTICLE 5. REGISTRATION

5.1 Academic Year (Revised 07/01/22)

The academic year spans approximately August 1 to July 31 and is composed of five terms, designated 1 through 5, each of 10 weeks in duration. All students begin their studies on the 1st day of Term 1 unless extraordinary circumstances justify beginning at another date. Students seeking an alternate start date should submit a written request to their Program Director. If the Program Director supports the request, they will transmit the request to the Graduate School Dean. Off-cycle admissions are permitted only if approved by the Dean.

5.2 Deadline for Registration (Revised 08/23/04, 08/16/19, 08/01/20)

The student will be billed a $25.00 late registration fee when registering after the stated deadline. If a student fails to register by the end of the 6th business day of the term, they may be administratively withdrawn from the Graduate School.

5.3 Program of Courses

5.3.1 Course Schedule (Revised 08/16/19, 08/01/20)

The Graduate Program pre-registers students for most courses, and students may self-register in CAMs during designated Open Registration periods. Changes to course registration after the close of Open Registration up to the end of the 6th business day of the term require notification to the Program Administrator. Changes to course registration after the 6th business day of the term require the approval of the Program Director (see 5.5 for courses that start after the first week of the term). After appointment of the Major Advisor, approval is indicated by the signature of the Program Director and the Major Advisor.

5.3.2 Research Rotation Requirement (New 06/15/06, Revised 08/16/19)

Research rotations begin to teach students how researchers approach biological problems. A rotation is expected to provide an introduction to the laboratory's research goals as well as instruction in basic laboratory skills. Rotations also familiarize the students with different laboratories in their Graduate Program and facilitate the ultimate selection of a Major Advisor. A typical research rotation lasts a whole term, but students may split a rotation in consultation with the Program Director. The number of credits earned in each rotation is adjusted so that the combination of research rotation and all other courses sums to a total of at least 12 credit hours per term.

In order to maximize the benefits of the research rotations, students are required to complete a minimum of three research rotations in different laboratories (or three full terms in the case of split rotations). All rotation mentors must be members of the Graduate Faculty. The first and second research rotations must be done with a rotation mentor who is a member of the student's graduate program. Subsequent rotations may be done with a mentor-qualified member of the Graduate Faculty outside of the student's Graduate Program with approval of the PEC.

Students and faculty are encouraged to discuss the potential for joining a laboratory during or after the rotation. However, students need the opportunity to explore various laboratories without pressure. Therefore, faculty will make no commitment and will not request commitment from a student prior to completion of three rotation terms. Official appointment of a major advisor can

be approved only after the completion of three rotation terms. The three-rotation requirement is managed and monitored by the individual Graduate Programs.

Exceptions:

- Students may choose to work at BCM during the summer before matriculation and count the summer research as one rotation, pending approval by the Graduate Program Director. Permanent employment at BCM prior to matriculation (e.g. as a research technician), or research conducted outside of a BCM degree granting program, cannot be counted as a rotation.
- MD/PhD students who participate in research during their initial MD training period may count their experience as one rotation pending approval by the Graduate Program Director and in consultation with the MD/PhD Program Director.
- Students who transfer to BCM with their advisor after joining his/her laboratory in another institution are exempt from the three-rotation requirement but are encouraged to familiarize themselves with the work done in other laboratories in their Program.

5.4 Course Load (Revised 08/16/19, 07/01/22)

The PhD degree requires a full-time program of study, and all students must be enrolled for at least 12 hours of credit each term. Students who have been admitted to candidacy, will be automatically registered by their Program administrator for 12 hours of dissertation each term. The number of contact hours required for coursework and research credit are defined in the BCM Credit Hour Policy (Section 23.1.11). A student wishing to take more than 17 term hours per term must obtain written permission from their Major Advisor, and have the approval of the Dean.

5.5 Course Changes (Revised 8/27/15, 08/01/16, 08/16/19, 08/01/20)

Throughout the first six business days of a term, registration may be changed with notification to the Graduate Program Administrator and the Graduate School. For courses that do not start in the first week of the term, registration may be changed within 6 business days of the first class meeting with notification to the Graduate Program Administrator and the Graduate School. These changes are not reflected on the transcript. After that time through to the midpoint of the course duration, a student may withdraw from a course with the approval of the Graduate Program Director and the Major Advisor (if applicable) and notification of the Graduate School office. Withdrawal is designated on the transcript by the symbol WD.

Withdrawal after the midpoint of the course duration, but prior to the final exam date, must be approved by the Dean of the Graduate School. The notation on the Transcript will be WD. If the Dean does not give permission to withdraw, the notation will be I (incomplete) or F (Failing) depending on the student's performance prior to the date of withdrawal. The BCM Course Repeat Policy (Section 23.1.09) outlines how repeated coursework is listed on student transcripts.

5.6 Dissertation Registration

A graduate student may not register for dissertation until a TAC has been appointed, the Qualifying Examination has been successfully Passed, and the Program has proposed the student for candidacy.

5.7 Retroactive Credit

Credit cannot be given retroactively for a course in which a student was not officially enrolled.

5.8 Inter-Program Transfer (Revised 01/13/97, 07/29/13)

Once a student has committed to a specific Program, it is expected that the course of study will be pursued to completion. In exceptional circumstances, students may transfer from one Graduate Program to another upon approval by the director of each of the Programs concerned and by the Dean; however, it is the student's responsibility to present compelling reasons for such a transfer. Before a transfer request can be initiated, all parties must be certain that the resident Program has not been able to address the concerns of the student. Neither Program will approve such a transfer without consultation between the directors of

both Programs. Students are encouraged to consult with the Graduate School administration if they feel that conditions have arisen necessitating an inter-Program transfer, and may appeal disapproval by their current Program to the Dean, who will have the final authority for approval. Any transfer will be noted on the student's permanent record upon submission of "Interdepartmental Transfer" form. Even if the student has been admitted to candidacy prior to transfer, the new Program may require that the student complete all requirements for admission to candidacy in the new Program.

5.9 Audit Students (Revised 11/08/07, 08/01/20, 07/01/21, 07/01/23)

BCM graduate students are allowed to audit any courses offered by the graduate school for no credit and without examination if the course director approves. If a student wishes to audit a BCM graduate school course, the student must register for an audit and obtain permission of their Program Director and the course director. Registration is completed by using the Audit Registration Form. For the course to be listed on the student's transcript (without any credit hours awarded toward graduation), the student must submit to the Graduate School a course syllabus (dates, lecture titles and lecturer name) in which the student's attendance at 70% or more of the classes is documented by the lecturer's signature for each lecture attended. An audit student may not take examinations. If the student fails to submit an attendance document by the last day of the term, they will be withdrawn from the course and it will not appear on their transcript.

Other individuals may audit Graduate School courses under the following conditions: The individual is a full-time student of an institution with which BCM has a reciprocal agreement, or a member of the BCM faculty or staff. Should the auditor be a BCM employee, written consent is required from the faculty employer, the course director and the Graduate School Dean. Upon recommendation of the course director, transcripts will bear the course name and will be marked audit. No more than 15 term hours of audit or course credit may be accumulated by anyone other than a full-time student.

5.10 Special Students (Revised 01/16/04, 08/01/20, 07/01/21)

Baylor College of Medicine associated personnel who hold a Bachelor's or higher degree, but who are not students, may with permission, register as Special Students for courses offered by the Graduate School and its Programs. Individuals who hold an active offer of admission but have not yet matriculated, are also considered to be Special Students and may take graduate courses before they matriculate, by permission of the Dean. Special Students may not take courses through the reciprocal agreement with another institution. Written consent is required from the faculty employer, the course instructor and the graduate school. A special student may register for a maximum of 15 total term hours of course credit and/or audit credit. Any credit hours for which grades of C or F are received count toward the 15-hour limit. Petitions for exception should be directed to the Dean of the Graduate School. The performance of special students is subject to review by the Promotions Committee and a grade of C or lower may be grounds for the graduate school to refuse permission for enrollment in subsequent courses. BCM graduate students will be given priority for courses with limited enrollment.

5.11 Inter-Institutional Student Registration - Reciprocal Agreements (Revised 06/15/06, 07/30/12, 08/16/19)

In addition to full-time students accepted in the PhD and MD/PhD Programs, matriculated full-time students in a school with which BCM has a reciprocal agreement (Rice University, Texas A&M University, University of Houston, The University of Texas Graduate School of Biomedical Sciences, and The University of Texas School of Medicine may take courses for credit without going through formal admissions procedures or paying tuition. The established BCM procedures for registration must be followed. BCM graduate students may take graduate level courses at reciprocating institutions under the same conditions. BCM students can register for inter-institutional courses only when the course is approved by the student's Program, offered at the host institution for graduate credit, and when a comparable course is not offered at BCM. During the registration process (Inter-institutional registration

form), the Graduate School will evaluate the effectiveness of inter-institutional courses in supplementing the BCM curriculum and in meeting the overall goals of the student's Program. Registration must be approved by the student's Program, the BCM GSBS, the host institution and the host instructor. BCM students must comply with all of the requirements of the institution offering the course (*e.g.*, background checks, immunizations, etc.)

5.12 Floating Holidays and Term Breaks (New 08/01/11, Revised 07/01/22)

Courses, exams, or other required activities will not be scheduled on the day after Thanksgiving, nor during Graduate School term breaks. For students in research courses, including research rotations, arrangements for time off should be made with the student's major advisor or program director for students without a major advisor.

ARTICLE 6. ACADEMIC REGULATIONS

6.1 The Grading System and Assigning Credit

6.1.1 The Grading System (Revised 04/15/98, 04/26/02, 07/01/23)

Grade	Description
A	Honors Work
B	Passing Work
P	Passing Work
C	Marginal Work
MP	Marginal Pass-Research Courses Only
I	Temporary Incomplete Work
F	Failing Work

A grade of C or F does not confer credit toward Graduate School degree requirements. MP only applies to research related courses (Special Projects, Research Rotation and Dissertation). Incomplete (I) is to be used only to represent incomplete work; no other use of the grade is to be accepted. The grade may be carried no longer than three terms. After the third elapsed term, the I automatically becomes an F. For all courses that are graded without objective examination (e.g., graded on attendance) only grades of P (Pass), F (Fail) or I (incomplete) can be used. These include but are not limited to Readings and Student Research Seminar. Grades of P (Pass), MP (marginal Pass) or F (Fail) are to be used for Special Projects, Research Rotations and Dissertation. In all courses (School of Medicine and Graduate School), all students must be graded on the identical criteria. If a Program wishes additional criteria for its students in a required course, such criteria should not be reflected in the recorded grade.

Please refer to the institutional Course Repeat Policy (Section 23.1.09) for criteria for calculating repeats in coursework.

6.1.2 Assigning Academic Credit (02/29/12, Revised 8/27/15, 8/01/16, 07/01/22)

The academic calendar of the Graduate School is divided into five academic terms. For non-research courses, each term is of 10 weeks duration, divided into 8 weeks of instruction time, followed by one week of exams and one week of break time. Terms 1 and 2 are offered in the fall (August-December), terms 3 and 4 occur in the Spring (January-May) and Term 5 occurs in the Summer (May-July). Credits for coursework (term hours) are awarded on the basis of the Carnegie Unit. A term unit of credit is equal to one hour of lecture, seminar or small group discussion time per week or three hours of laboratory research activity per week. One term credit hour is equivalent to 0.5 semester credit hours. If the calculation of credit hours using the convention specified above is a non-integral number, the credit hours will be rounded to the closest integer. Please refer to the

institutional Credit Hour Policy (Section 23.1.11) for additional guidance on how academic credit is awarded and for overall guidance on the number of credits required for each BCM degree.

6.2 Grade Changes (Revised 08/23/04, 8/27/15, 08/01/16)

Grades submitted by the faculty become final on the official date that grades are due each term. Grade changes for other than numerical error are discouraged. If an exam is re-evaluated, all students' answers to the affected sections of the exam are subject to review. Grade alterations affecting one student only, must be justified on the basis of a mathematical or related error. Requests to change final grades must be submitted in writing by the course director, with the approval of the Program Director, to the Promotions Committee. The request must specifically state the reason for the change. If student concerns regarding final grade are not resolved through discussion with the course director, students may choose to proceed with a formal grade appeal. Guidance for the appeal process, inclusive of timeline, is outlined in the BCM Student Grievances Policy (Section 23.1.08).

6.3 Student Evaluation (Revised 06/15/06)

Students are encouraged to complete evaluation-of-course/instructor forms at the end of each term, including courses taken at other institutions through inter-institutional agreements (see article 5.11). The Graduate School office shall distribute these forms for each service course to each student engaged in classroom-based course work. Completed forms are to be returned to the Graduate School, before the end of the subsequent term, where they will be collated and sent to the respective course directors.

6.4 Transcripts

All grades and academic actions will be permanently recorded on the transcript. Students may be provided with unofficial copies of transcripts. Official copies will be released only by written request of the student to the Registrar's office.

6.5 Unsatisfactory Academic Progress (Revised 04/26/02, 08/23/04, 08/03/09, 07/30/12; 07/29/13, 07/14/14, 08/01/16, 04/06/18)

Students are considered to be making good academic progress unless they have been placed on Academic Warning, Academic Probation or recommended for dismissal. Graduate students are expected to maintain satisfactory progress toward the degree. One or more credit hours with the grade of C, MP, F, or I makes a student subject to review by the Promotions Committee. The Promotions Committee will take one of the following actions: 1) Place the student on Academic Warning; 2) Place the student on Academic Probation; 3) Recommend the student for dismissal to the Dean; 4) Other action deemed appropriate by the Promotions Committee.

In the case of a grade of MP or F in a research-related course, the student's TAC and Program Director will be notified as soon as possible by the Graduate School. If a TAC has not been established, the Program Director will be notified. The Program Director or designee will meet with the student and major advisor. A plan of remediation, signed by student, major advisor, Program Director and TAC (if appropriate) must be submitted to the Graduate School within two (2) weeks of the preceding term's grade submission deadline. Before assigning a grade of F in a research-related course, the major advisor must notify the Program Director of the reason(s) for the grade, documenting that the student has been given written warning of their unsatisfactory performance and potential remedies.

A student must be making good academic progress when granted permission to write and at graduation for either the MS or PhD degrees.

6.6 Academic Warning (Revised 04/13/06, 11/08/07, 07/14/14)

Any student who receives one to three credit hours of C, or one instance of MP (in a research-related course), will be placed on Academic Warning by the Promotions Committee. The Promotions Committee will notify the student, in writing, of its decision. To be removed from Academic Warning, the student must retake the required course within one year and obtain a grade of B (P in a research-related course)

or better, and must also complete two terms with no grades lower than B (or P in a research-related course). A student who Fails to comply with the specific conditions of the Academic Warning may be placed on Academic Probation by the Promotions Committee. A student who satisfies the conditions of the Academic Warning will be removed from Academic Warning upon review by the Promotions Committee.

6.7 Academic Probation (Revised 06/21/02, 04/13/06, 11/02/06, 11/08/07, 07/14/14)

Any student who accumulates four or more credit hours of C, or receives one or more credit hours of F, or two (cumulative) grades of MP in research-related courses, will be placed on Academic Probation by the Promotions Committee. A student who fails their first attempt at their Qualifying Examination will be placed on Academic Probation. The Promotions Committee will notify the student, in writing, of its decision. When a student is placed on probation or when a student on probation accumulates additional grades of C or lower, a plan of remediation must be submitted to the Promotions Committee by the student's Program. To be removed from Academic Probation the student must: (1) retake required course(s) within one year and obtain a grade of B or better (P in a research-related course), or their second qualifying exam, and (2) complete two terms with no grades lower than B (P in a research-related course).

A student who fails to comply with the specific conditions of his/her probation will be recommended to the Dean for dismissal from the Graduate School. A student who satisfies the conditions of probation will be removed from Academic Probation upon review by the Promotions Committee.

6.8 Dismissal (Revised 06/23/00, 11/16/01, 04/13/06)

6.8.1 Dismissal Due to Poor Academic Performance (Revised 11/11/99, 11/16/01, 07/29/13, 07/14/14, 08/01/20, 07/01/21)

A student who receives a grade of C or lower in nine or more term hours of courses, three (cumulative) grades of MP in a research-related course, or 9 or more term hours of a grade of F in a research-related course, will be recommended for dismissal from the Graduate School after grade verification by the Promotions Committee and Dean. A student who fails to pass their first qualifying examination may be recommended for dismissal to the Dean by the Promotions Committee (see Section 9.8.1). A student who fails to pass their second qualifying examination will be recommended for dismissal to the Dean by the Promotions Committee (see Section 9.8.1).

First-year students who fail to appoint a major advisor by the end of their first year, or upper year students who are unable to appoint a major advisor after leaving a thesis laboratory within the rotation period specified by Section 1.8.3, may be recommended for dismissal by their Graduate Programs for inability to make progress towards their degree.

The Dean will notify the student, in writing, of a dismissal decision. The student will have the right to appeal the dismissal as outlined in Section 6.10, and must notify the Dean of the intent to appeal, in writing, within 10 calendar days of receipt of notification of the dismissal action.

If the dismissal is unchallenged or upheld on appeal, dismissal is entered on the permanent transcript, along with the student's academic status at the time of dismissal. Outstanding grades of Incomplete at the time of dismissal will remain Incomplete.

6.8.2 Dismissal for Nonacademic Reasons (Revised 08/29/97, 11/16/01, 06/14/05, 02/07/08, 07/14/14, 07/01/21)

A student also may be dismissed for non-academic reasons that seriously violate the expectations of professional behavior (Section 6.11). After investigation of any allegations, any finding of non-professional conduct will be forwarded to the Promotions Committee for review and action. After its review, the Promotions Committee may recommend appropriate sanctions or penalties, including a recommendation for dismissal for non-academic reasons to the Dean. The Dean will notify the student, in writing, of the Promotions Committee's recommendation. If the Promotions

Committee recommends dismissal, the student will have the right to appeal the dismissal as outlined in Section 6.10. The request to appeal a dismissal decision must be made in writing to the Dean within 10 calendar days of receiving notification of the dismissal action.

6.8.3 Ineligibility to Reenroll (New 08/01/20)

Ineligibility to reenroll for reasons other than financial and academic will result in a transcript notation. If a student withdraws during a pending disciplinary charge that may result in the student's ineligibility to reenroll at BCM, BCM shall continue the disciplinary process until there is a final determination of responsibility. The student's transcript may be updated accordingly once a final determination of responsibility has been made.

6.9 Withdrawals

6.9.1 Request to Withdraw (New 01/16/04, Revised: 06/14/05, 04.13.06, 08/03/09, 07/29/13, 07/14/14, 08/01/20)

A student may withdraw from the Graduate School at any time, but to do so, the student must submit to the Dean a completed "Request to Withdraw/Clearance Form" signed by the Program Director for approval. The student's academic status at the time of the withdrawal will be reflected on the transcript. With respect to courses, if the request to withdraw is approved by the Graduate School after the student has completed all the course requirements, including the final examination if applicable, the transcript will reflect the grade earned. Outstanding grades of I at the time of withdrawal will be changed to WD (Withdrawn).

A student charged in a misconduct issue may withdraw. If a student withdraws during a pending disciplinary charge that could result in the student's ineligibility to reenroll at BCM, BCM shall continue the disciplinary process until there is a final determination of responsibility. If the allegations are substantiated by an investigation, and the Promotions Committee subsequently recommends dismissal, the transcript shall be amended to show that the student was dismissed for reasons other than academic or financial.

6.9.2 Administrative Withdrawal (New 01/20/04, Revised 11/02/06)

Students who fail to register during a term without specifically requesting leave or permission to withdraw, shall be withdrawn administratively. Transcripts will bear the notation "Administratively Withdrawn". All payments and benefits, including the tuition waiver, will cease upon administrative withdrawal.

6.10 Appeal of Promotions Committee Decisions (Revised 11/16/01, 07/14/14, 07/01/21)

6.10.1 Appeal Request by the Student (Revised 07/01/21)

A student who disagrees with a Promotions Committee decision may appeal that judgment in writing to the Dean within 10 calendar days of being notified of the Promotions Committee's decision. The appeal request must state the basis of the appeal (Section 6.10.2). The appeal request must include any relevant information and supporting documentation that may support the appeal's assertions. Mere disagreement with a Promotions Committee decision is not a sufficient grounds for an Appeal.

6.10.2 Appeal Review by the Dean (Revised 11/16/01, 07/14/14, 07/01/21)

The Dean will review the appeal request with regards to: 1) whether Graduate School policies as outlined in this manual were followed, 2) the appropriateness of the evaluation of any information provided by the student, faculty or Program to the Promotions Committee, or 3) any other relevant information that was not available to the Promotions Committee. The Dean's decision will be rendered within 20 calendar days.

If the recommendation of dismissal or other decision by the Promotion Committee is overturned by the Dean, the student's Graduate Program and the Promotions Committee must recommend a remediation plan for the student within 15 calendar days, subject to the approval of the Dean. If the decision is not overturned, the student may escalate their request for an appeal to the BCM Student Appeals and Grievances Committee in accordance with BCM Policy 23.1.08.

6.10.3 Responsibility of the Student's Major Advisor, Graduate Program and GSBS During the Appeals Process (Revised 11/16/01, 07/14/14, 07/01/21)

During the appeals process(es), the student will maintain academic enrollment, retain his/her stipend and health insurance from the established source, as well as research support from their research mentor. In limited circumstances (see 6.11.5), the Dean may place a student on suspension during appeal of dismissal decisions.

6.11 Professional Conduct (New 02/07/08, 08/16/19, 07/01/22)

Students are expected to perform their duties in a professional manner and abide by all the policies of the Graduate School and its graduate programs, and Baylor College of Medicine policies including but not limited to:

- BCM Code of Conduct (Section 31.1.01)
- Respectful & Professional Learning Environment Policy: Standards for Student Conduct and College Oversight (Section 23.2.01)
- Learner Mistreatment Policy (Section 23.2.02)
- Educator Conflicts of Interest Policy (23.2.04)

Any conduct not in keeping with the ethical or professional standards of BCM is defined as professional misconduct. This includes, but is not limited to, actions of academic misconduct that occur in the context of meeting academic requirements (courses and Qualifying Examinations), scientific misconduct as defined by the College, violation of College policies, and acts of a criminal nature.

6.11.1 Academic Misconduct (New 02/07/08, 07/29/13, 07/01/25)

Academic misconduct is defined as dishonesty (cheating, plagiarism, etc.) that occurs in conjunction with academic requirements such as courses or Qualifying Examinations. Allegations of academic misconduct should be made in writing to the Dean. In cases of alleged academic misconduct, the Dean will, within one week, appoint an Investigative Committee consisting of three faculty members and two students to investigate the allegations and report their findings and recommendations to the Promotions Committee (Section 6.8.2). The student has a right to receive a copy of the written allegations of academic misconduct provided to the Investigative Committee and to respond to the Committee orally or in writing concerning any allegations if he or she chooses. The student may bring a BCM faculty member of their choosing for personal support. The support person serves the student as a resource for information concerning the process and as a sounding board for the student's experiences about the process and/or underlying complaint. The support person does not serve as an advocate or therapist and is prohibited from directing the student's actions or statements. Only salaried BCM faculty members familiar with the GSBS and the graduate program in which the student is currently enrolled are eligible to serve as a support person and are subject to approval by the GSBS Dean.

6.11.2 Scientific Misconduct (New 02/07/08)

Scientific misconduct is defined as "fabrication, falsification, plagiarism or other acts that deviate from commonly accepted practices within the scientific community for proposing, conducting or reporting research" (US Public Health Service Regulations).

Allegations of scientific misconduct should be reported to the College officer in charge of investigating these allegations using the policies defined by the College. Once the College process has reached a conclusion and any appeals have concluded, any finding of scientific misconduct will be sent to the Promotions Committee for their review and action (section 6.8.2)

6.11.3 Violation of College Policies (New 02/07/08, Revised 8/27/2015, 08/01/16, 08/01/20, 07/01/22)

Graduate Students are required to abide by all policies that apply to them, including the policies set by the Graduate School, their Program and BCM. The BCM policies include, but are not limited to, those pertaining to:

Human Resources (Section 02)

Information Technology Acceptable Use Policy (Section 12.02.01)

Social Media Policy (Section 11.2.15)

Use of Copyrighted Material (Section 20.8.03)

Diversity Policy (Section 02.2.40)

Student/Trainee Fundraising Projects (Section 17.1.07)

Gift Acceptance and Processing Policy (Section 17.02.01)

Removing PHI from BCM Premises (Section 31.4.21)

Environmental Safety

Office of Research (Human Subject and Animal Research)

Allegations of the violation of BCM policies by graduate students will be initially dealt with by the normal processes for handing such allegations within BCM. When other BCM entities deal with professional misconduct allegations involving graduate students, the Graduate School Dean should be informed of these allegations if in keeping with confidentiality requirements. Under extraordinary circumstances, where there may be concerns about well-being of the student or others, the Dean may suspend the student while awaiting a final resolution of the allegation by BCM.

If an allegation is substantiated, the Dean will inform the student, their Program Director, and major advisor in writing of the responsibilities of students to follow BCM and Program Policy and may recommend the matter to the Graduate School Promotions Committee if it is judged to be sufficiently serious to serve as grounds for dismissal (section 6.8.2).

6.11.4 Criminal Acts (New 02/07/08)

The Dean may recommend review of the status of a graduate student convicted of a criminal offense. If the criminal act is judged to be of a serious nature, the Dean may forward the case to the Promotions Committee for their review and recommendation concerning dismissal (section 6.8.2).

6.11.5 Suspension (New 08/01/20)

Suspension is a disciplinary action by which a student is temporarily relieved of their academic and/or research responsibilities. The GSBS Dean has the authority to suspend students from BCM during deliberation of reported professionalism, misconduct and/or academic issues incompatible with continuing curricular or research activities. Suspension may also be warranted in circumstances including but not limited to risk of harm, disruption of the learning environment, arrest, reasonable suspicion of drug or alcohol abuse, allegation of serious misconduct, or any other behavior sufficiently serious or alarming to require an investigation by the proper school or legal authorities, as well as during appeal of dismissal decisions pertaining to the above. Written notice of the suspension, including the reason for the action, terms of the

suspension and approximate duration will be provided to the student in writing. The decision to remove a student from suspension is at the discretion of the Dean.

6.12 Participation in Extracurricular Activities (New 08/23/04, Revised 08/01/16, 07/01/22)

Students who participate in extracurricular activities sponsored by the College requiring a significant time commitment including mentoring, recruiting, teaching assistantships, externships, etc. must be making good academic progress and have the permission of their major advisor and Program Director before initiating the activity.

Students may also participate in part-time internships that occupy 25% or less of their weekly work time with the permission of their major advisor and program director. Any individual internship is limited to 6 calendar months in duration with a maximum cumulative duration of 1 calendar year. Eligible students must be admitted to candidacy and not in a status of Academic Warning or Academic Probation. Internships are discouraged for students in the 7th year and above unless warranted by special circumstances that do not delay degree completion. International students must comply with Curricular Practical Training rules and seek approval for internships from the International Services Office.

6.13 Student Appeals and Grievances Policy (New 08/15/05, Revised 07/30/12, 01/29/15, 8/27/15, 08/01/16, 07/01/22)

A grievance is a complaint arising out of any alleged unauthorized or unjustified act or decision by a member of the faculty, member of the administration, or member of the staff which in any way adversely affects the status, rights, or privileges of a member of the student body. A formal grievance is a complaint that has not been resolved by informal procedures, and that has been documented in writing by the student, or a faculty or staff member on a student's behalf. The writing can take the form of a letter, memo, email, or other online communication, or can be communicated in writing or orally to the Integrity Hotline. The burden of proof shall rest with the complainant.

Student complaints or grievances should initially be addressed, if possible, by the student discussing the problem with the individual (student, faculty, staff) most closely related to the area of the grievance. Following that, the student should contact the individual's Supervisor, Program Director, Departmental Chair, Associate or Assistant Dean and the Dean in the Graduate School of Biomedical Sciences. If the problem is not resolved, the student may file a formal grievance with the Integrity Hotline (855-764-7292). Regardless of the above, students have the right to file a formal complaint at any time. The Integrity Hotline may also be accessed through www.bcm.ethicspoint.com. Additional information is located in the BCM Student Appeals and Grievances Policy (Section 23.1.08).

6.14 BCM Statement of Student Rights (New 8/27/15)

BCM is committed to creating an environment for students that is conducive to academic success and academic freedom commensurate with all applicable laws and regulations. As students are not only members of the BCM academic community but are also members of society as a whole, BCM works to ensure that all rights, protections, and guarantees that students are assured as citizens of society are also provided to them within BCM.

Baylor College of Medicine's Statement of Student Rights aligns with the College's mission as a health sciences university that creates knowledge and applies science and discoveries to further education, healthcare and community service locally and globally. These rights embody our values of respect, integrity, innovation, teamwork, and excellence, our vision to improve health through science, scholarship and innovation and our adherence to the Institutional Code of Conduct.

Students have the right to freedom of expression within an atmosphere of culturally responsive inclusiveness and sensitivity. The free dissemination of ideas is key to promoting the academic, personal, and professional growth of BCM students.

Students have the right to a safe learning environment that is free of discrimination, violence, and harassment. Baylor College of Medicine seeks to provide a community of respect, open communication, collaboration, and inclusiveness.

Students have the right to due process in incidents of alleged student misconduct, and have the right to appeal decisions in this regard. Baylor College of Medicine strives to guarantee accuracy in academic results and decisions.

Students have the right to confidentiality of education records. Explicit written confidentiality policies and procedures are in place to achieve the protection of all personal information and academic records.

ARTICLE 7. STUDENT RECORDS

7.1 Maintenance of Student Records (Revised 08/01/16)

The Office of the Registrar is responsible for maintenance of all official academic records of students. BCM maintains a file on each student. Included in a student's file are the original application form of the student for admission to BCM, transcripts of any college records, and test scores. Subsequent to the enrollment of the student at BCM, the student file contains enrollment forms, grades, letters of correspondence to other institutions concerning the student, narrative summaries rendered by the faculty concerning the student's academic work, letters indicating actions of the Promotions Committee, communications concerning the scholarships and loans, and other correspondence relating to the student's education at BCM. In addition to written material kept in the student files, BCM maintains, on a computer, general information about each student: courses taken, grades, summary statements of academic actions, and enrollment information. BCM's policy regarding creation and maintenance of student records is based upon practice recommended by the American Association of Collegiate Registrars and Admissions Offices.

7.2 Confidentiality of Student Records (Revised 8/27/15, 08/01/16)

It is the Institutional Student Records Policy (Section 23.1.06) that the material contained in the student records is confidential; transfer of such information within the school is permitted only for legitimate academic purposes. The school complies with the provision of both the Texas Open Records Act of 1973 and the Federal Family Educational Rights and Privacy Act of 1974, and regulations governing educational institutions written by the Department of Health and Human Resources. The institution is responsible for ensuring that student academic records are properly secured and trains all staff supporting the education mission in Family Educational Rights and Privacy Act (FERPA), American Association of College of Registrars and Admissions Officers (AACRAO) and Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) accreditation requirements.

7.3 Student Access to Records (Revised 08/01/16)

A student may examine student records at BCM concerning himself/herself by presenting the request to the Office of the Registrar. These records shall be made available for review by the student as promptly as possible. The records shall be examined in the office in which they are kept, under observation of administrative personnel, and shall not be altered, destroyed, or carried away from the office by the student. Material which relates to more than one individual shall not be made available for direct review, but the student shall be told the information contained in such records which relates to him/her. Former students have the same access to their records as those currently enrolled. A student may obtain a copy of his/her records.

7.4 Challenge of Content Accuracy (Revised 08/01/16)

A student may challenge the accuracy of information contained in a record or may challenge information in a record that appears to represent an undue invasion of privacy. In the case of a challenge, the student

should meet with the faculty member or administrative official responsible for the information being questioned. The faculty member or administrative official may, through discussions with the student, concur with the challenged points and correct or delete the information accordingly. If no compromise can be reached, the student may file a grievance (see GSBS policy 6.13).

7.5 Faculty Access to Records (Revised 08/01/16)

All review of information in the file of a student in the Office of the Registrar by faculty members and administrative officers other than by those persons responsible for keeping the records, requires the signature of the faculty member or administrative official on a written form kept within the student's file and accompanied by the date of review and by a brief statement indicating the reason for review of the records.

7.6 Transfer of Information from Records

The student shall be notified prior to the transfer of any information within the student file to persons or institutions other than those associated with or affiliated with BCM. Such information may be transferred only: 1) By reason of a valid subpoena or judicial order of a court; 2) To federal or state educational agencies, providing the agency legally requests the information in writing and specifies the purpose for acquiring the information. 3) To organizations responsible for the accreditation of BCM; 4) Upon written request of the student, to persons he/she designates.

7.7 Criminal Background Checks and Health-Related Information (New 02/07/09, 08/01/16, 07/01/22)

Although applicants are required to disclose any criminal background on their applications, formal criminal background checks, drug and/or alcohol testing, or vaccination or other health records may be required of students. Information obtained from these checks will only be used in accord with the BCM Background Checks and Criminal Convictions Policy for Program Applicants and Current Students (Section 23.1.00). The Graduate School and its representatives will hold such information in strict confidence and it will not become part of the student's official file. The student will have the right of access to all information collected and will be afforded the right to challenge its accuracy. In cases where there are findings reported on these checks, an ad hoc working group consisting of the Dean, an Associate Dean or the Director of the student's Program, a representative of the Office of the General Counsel, and any other school official with a legitimate educational interest will review facts and circumstances and recommend what if any actions should be taken.

Students are required to comply with the BCM Vaccine-Preventable Disease Policy (Section 18.1.04).

ARTICLE 8. RESIDENCY

8.1 Residency Requirements (Revised 06/21/02, 11/02/06, 07/01/25)

All candidates for the degree of Doctor of Philosophy are required to spend 15 terms (3 years) in residency at BCM with the exception of those students receiving transfer of credit. The residency requirement will be reduced by one term for each 12 term hours transferred. A student who has obtained approval of the full transfer of credit (60 term hours) will have a residency requirement of 10 terms (2 years). Under rare circumstances (for example, a student wishing to leave BCM to complete his/her research due to the departure of the Major Advisor) the residency requirement may be waived upon request. This request must be approved by the Dean and by the Promotions Committee. Successful completionof the first year's Program in the BCM School of Medicine may be used by a student in the MD/PhD Program to satisfy one year of the residency requirement in the Graduate School.

8.1.1 Course Attendance (New 07/01/21)

Graduate students enrolled in GSBS courses are expected to remain in academic residence during the published academic terms (i.e., reside in the Houston vicinity). Personal time away from Baylor College of Medicine, within the timeframe of required academic activities without prior approval is not permitted.

Students will not be awarded credit for assignments or assessments taken during classes that students do not attend unless the absence is excused and all make-up work is completed. It is the expectation that students will be available to attend any rearranged sessions in a course within their academic residence, unless they have received prior approval to be absent. Course directors may factor satisfactory attendance in deriving a student's final course grade and may limit absences. The criteria for satisfactory attendance and the impact of attendance on a student's final course grade are specified in the syllabus of each course.

Personal time away during courses requires prior approval from Course Directors and the Program Director and will not be granted without good cause. Requests for planned absences from courses must be submitted for consideration no later than two weeks prior to the start of the term.

Students may be excused for necessary health care services to maintain their physical and mental well-being. Students must communicate planned absences from didactic courses to Course Directors and the Curriculum Office (gsbs-curriculum@bcm.edu). Students need not disclose the specific type of healthcare that is being sought. These excused absences should have no impact on the student's performance evaluation or grade for the course. Elective health care services should not be scheduled during course meeting/exam times as published in the course syllabus.

8.2 Leave of Absence (LOA) (Revised 01/16/04, 06/14/05, 11/02/06, 08/03/09, 08/16/19, 08/01/20, 07/01/22, 07/01/25)

A student who seeks a voluntary LOA must submit a completed Leave-of-Absence/Clearance Form to the GSBS prior to the start of the leave. Requests are subject to approval by the Program Director and subsequently by the Dean. An LOA may be granted for a period of up to one year and shall be permanently noted on the student's transcript. Types of LOA (e.g. medical, personal) and required documentation are defined in the BCM Student Leave of Absence Policy (Section 23.1.12).

If the request for LOA is approved by the Graduate School after the student has completed all the course requirements in a given term, including the final examination if applicable, the transcript will reflect the grade earned. Grades for courses not yet completed at the time of withdrawal will be assigned as WD (withdrawn). A student who leaves BCM prior to submitting a completed Request for LOA form, inclusive of the clearance process, will be placed on involuntary LOA.

Students on LOA who fail to register for coursework or research within one week of the termination of the LOA shall be administratively withdrawn. A request from the student for an LOA extension must be submitted in writing to the Dean no later than the day in which the original leave will expire. The maximum LOA time, inclusive of original and any subsequent extension requests, is 2 years. When an LOA is granted to a student with incomplete grades, the Promotions Committee determines whether to extend the time allowed for completing course requirements.

Students on LOA will not be charged tuition. Students on LOA do not receive a stipend. Baylor College of Medicine student health insurance may be continued during the LOA for up to 12 months. Release from the group policy during an LOA may be obtained by signing the appropriate forms in the Graduate School Office (Request for Leave-of-Absence and LOA Clearance Form). Payment for health insurance, if continued during the LOA, must be arranged by the student prior to the start of the leave. An authorized LOA, for a period of up to one year, may be granted to graduate students who have completed their

dissertation research, have accepted another position, and plan to complete the writing of their dissertation during the leave.

Students on an approved LOA who go into year eight during the leave period will automatically have an extension of the 7-year rule through the end of their approved leave. Students on an approved LOA which begins after the defense will be granted an automatic extension of the 7-year rule to accommodate the 2-month period provided for thesis revisions. A student returning to BCM for the purpose of their dissertation defense, may petition the Dean for return to active status for the period required to defend the dissertation. Registration as a full-time student is not required during this period.

Foreign students may be prohibited by selective regulations of the U.S. Immigration and Naturalization Service from going on leaves of absence.

8.2.1 Limitations to Leave of Absence (New 07/01/25)

A student that has been referred to the Promotions Committee due to a finding of professional misconduct, as defined in GSBS Policy 6.11, cannot take a Leave of Absence (LOA) except for the following reasons:

a) Personal LOA. A student may be approved to take a personal LOA due to significant matters that interfere with student performance (e.g. death or illness of an immediate family member). The request must be approved by the Dean.

b) Medical LOA. A student may be approved to take a medical LOA due to diagnosed physical, mental or emotional health conditions. The student must submit supporting documents to either the Dean or to the Wellness Intervention Team, as described in BCM Policy 23.1.12, section IV.B.2. The request must be approved by the Dean.

The return date from the LOA must be coordinated such that a meeting of the Promotions Committee can be held within five business days of the scheduled date of return. Scheduling for this meeting must ensure that the Promotions Committee representative for the student's graduate program can be present for this meeting.

8.3 Remote Student Status (Revised 04/15/98, 01/16/04, 08/03/09, 08/02/10, 08/01/16, 08/16/19, 08/01/20)

Eligible students who wish to leave BCM with their Major Advisor and also continue their studies as a full-time BCM graduate student may do so by becoming a remote student. Before a student can be placed into remote status, they must be admitted to candidacy. A remote student's Major Advisor must possess a BCM faculty appointment (e.g. adjunct), remains the chair of the student's Committee and must attend each meeting of the Thesis Advisory Committee and the thesis defense. The Major Advisor must also guarantee that the student will continue to receive a stipend in an amount equal to or greater than the current BCM stipend, and health insurance benefits. A local BCM advisor must also be appointed to serve as a local contact. The local BCM advisor must also be a member of the student's TAC and the BCM Graduate Faculty. Approval to become a Remote Student must be obtained prior to departure and prior to receiving a stipend from the remote institution. Students on remote status without permission may be subject to dismissal.

Remote students are responsible for all requirements expected of other BCM graduate students (i.e. status reports, registration, symposium abstracts, etc.). Remote students and their Remote Advisors are required to meet with their Thesis Advisory Committee every six months. If traveling to BCM twice a year presents financial or logistical problems and if approved by the Program Director, remote faculty advisor, and local faculty advisor at the time of the remote status, a student may be permitted to hold one of the biannual status report meetings by communicating with TAC members over the telephone, or via video conferencing, and the Status Report Signature page can be sent electronically to the Committee members for their signatures. The Remote Advisor must be physically present at the student's dissertation defense

which must take place at BCM or Texas Children's Hospital. The required travel to BCM for the student and the Remote Advisor for at least one Thesis Advisory Committee meeting per year and for the final dissertation defense is the financial responsibility of the Remote Advisor.

8.4 Remote Advisor (New 06/14/07, Revised 08/02/10, 08/01/11, 08/01/16)

If a student's advisor leaves the College permanently or is on a LOA or sabbatical that is likely to be of duration of greater than a year, the advisor will become a Remote Advisor and a local BCM advisor will be appointed. The Remote Advisor will be the student's Major Advisor. Remote Advisor status requires the submission of a Remote Advisor Status form which includes a plan that satisfactorily addresses the continued progress of the student toward their degree. Remote Advisor Status requires approval of the student, the advisor, the Thesis Advisory Committee, the Graduate Program and the Dean. Students cannot have a Remote Advisor until they have been admitted to candidacy and have been enrolled in the Graduate School for at least three years.

The plan accompanying the request for Remote Advisor Status must include the following: (1) the appointment of a local BCM advisor who will have the responsibility of monitoring the student's progress and facilitate communication with the Remote Advisor, the Thesis Advisory Committee and the Graduate Program. The BCM advisor will have co-mentor status with the Remote Advisor and serves as a member of the TAC; (2) an approximate time-line for the student's completion of thesis research and their defense which is acceptable to the student's Graduate Program; (3) a mechanism for local supervision of the student's research, including a description of the role of the local advisor and other BCM personnel that will be available to the student on a regular basis; (4) a description of assigned laboratory space and the student's access to equipment, materials and supplies that will be sufficient to complete the dissertation research; (5) a guarantee that the student's stipend, insurance and research expenses will be paid for the duration of their enrollment. The source of the stipend, including any mechanisms for transferring remote funds to BCM to pay for the stipend must be described. Ultimately, the Graduate Program will be responsible for ensuring that financial support continues; (6) a description of how status reports and Thesis Advisory Committee meetings will be held. The Remote Advisor must be physically present at BCM for at least one of the status report meetings each year.

8.5 Childbirth/Adoption Accommodation (New 06/15/06, Revised 08/01/11, 07/29/13, 01/29/15, 08/01/16)

A graduate student is entitled to a maximum of eight (8) weeks stipend and benefits continuation from the current financial provider following the birth or adoption of his or her child. Students will not be placed on LOA during childbirth/adoption accommodation.

A graduate student who seeks a childbirth/adoption accommodation must submit a completed Childbirth/Adoption Accommodation form to the Graduate Program Director prior to the start of the leave. Baylor College of Medicine strongly encourages graduate students to submit requests approximately three (3) months prior to the anticipated childbirth or adoption. Requests approved by the Program Director are submitted for approval to the Dean. In most cases, the childbirth/adoption accommodation period will begin on the date specified in the childbirth/adoption accommodation form which is filed with and approved by the Graduate School Office but may be amended as necessary to correspond with the actual birth/adoption date. If childbirth/adoption occurs prior to the filing of the childbirth/adoption accommodation form, the accommodation period begins on the date of childbirth or adoption.

In order to be eligible for childbirth/adoption accommodation, the graduate student is required to provide the appropriate documentation to the Graduate Program Director. If the graduate student fails to provide the appropriate documentation within fourteen days of delivery or adoption, the stipend and benefits may be discontinued until the documentation is submitted.

The general policies of the school will remain in effect during the period of childbirth/adoption accommodation. During the childbirth/adoption accommodation period, the student may be assigned

some reasonable reading, writing, data analysis or other activities that may be accomplished without being present at BCM. The student is expected to make prior arrangements to submit work needed for the completion of any requirements missed during the accommodation period (e. g. status reports or course requirements) when the graduate student returns to the College. If the accommodation requires the student to miss classes or exams, the student may make arrangements to complete these requirements after returning or the student may withdraw from the course.

Accommodations for Breastfeeding Mothers as defined by BCM policy (Section 02.2.50) are available to students.

8.6 Pursuit of Other Degrees While Enrolled in the GSBS (New 08/02/10)

Students in the Graduate School of Biomedical Sciences are expected to devote their academic efforts entirely to the PhD/M.S. Programs. The GSBS does not enroll students on a part-time basis. BCM students may pursue multiple degrees while enrolled as a BCM student only if they are part of an official joint/dual degree Program of BCM (i.e. MD/PhD or School of Medicine Research Track/M.S.). Enrollment at another institution (such as the UT School of Public Health) that may be required as part of a BCM degree Program is permitted as are the completion of courses at other institutions for BCM credit that are covered by a reciprocal agreement for education (i.e. Rice, University of Houston, The University of Texas-Houston, Texas A&M, and UTMB-Galveston).

ARTICLE 9. PROGRESS TOWARD THE DEGREE

9.1 Oversight (Revised 06/16/08)

Students must continue to make satisfactory progress toward their degree. The student should set goals toward completing their studies with the assistance of the TAC and the Director of Graduate Studies their Program. Before appointment of the student's TAC, the Director of Graduate Studies of the student's Program is responsible for advising and mentoring the student. After the appointment of the TAC, the student is under the direction of a faculty preceptor supported by the student's TAC. Through the status report meetings, the TAC regularly reports the student's progress to the Director of Graduate Studies who conveys the status reports to the Promotions Committee of the Graduate School.

9.2 The Major Advisor & TAC

9.2.1 Appointment of Major Advisor and Advisor/Student Compact (also see 1.6.3) (New 04/22/03, Revised 06/16/08, 08/16/19)

The Major Advisor is the Chair of the student's TAC. In the case of co-advisors, the senior faculty member is the chair, unless one of the co-advisors is designated as the major advisor. The Major Advisor is responsible for providing mentorship and direction in helping the student develop research skills and the ability to do independent research. The Major Advisor must be selected by the student and the selection must be agreed to by the Major Advisor and the Graduate Program by the beginning of the student's second year. The Major Advisor must be present at all meetings of the TAC.

Upon appointment of the Major Advisor the Student and Major Advisor should review and sign the Compact between Students and their Major advisors and return a signed copy to the Graduate School.

9.2.2 Appointment of Thesis Advisory Committee (Revised 04/22/03, 08/23/04, 11/08/07, 06/16/08, 08/16/19, 08/01/20, 7/1/23)

Each student will be provided with advice from a faculty group charged with oversight of the student's academic, technical and professional development. Before appointment of a TAC, the Program Executive Committee (PEC) shall perform this role. The student's TAC must be

appointed by the end of the third term of their second year in residence, but may be appointed earlier and students are strongly encouraged to meet with their TAC as soon as practical after the Committee is appointed. TAC members agree to provide the student with oral and written feedback on their progress two times each year at TAC meetings and to fulfill their commitment to attend these meetings. The TAC mediates academic disputes between student and major advisor in issues that relate to the scope and content of the doctoral thesis, time in program and conditions for graduation. If the TAC cannot resolve a dispute, it should refer the dispute to the graduate program leadership via the Reporting or other member of the TAC.

This Committee shall consist of a minimum of five members: the Chair of the Committee (the student's Major Advisor, who must be a member of the Graduate Faculty with an appointment in any Program offering a graduate degree), one Reporting Member, two additional faculty members of the student's Program who must be eligible to train students, and at least one external faculty member. The requirement for a Reporting Member applies to students matriculating in 2019 and thereafter.

The Reporting Member is an experienced faculty member of the graduate program who is responsible for monitoring student progress and reporting back to the Graduate Program. The external committee member must hold an academic appointment in a medical or academic institution in the greater metropolitan Houston area that is in a department different from the primary academic appointment(s) of the Major Advisor(s) and should not be a member of the student's graduate program. The Graduate Program Director or their designee is an *ex officio* member of the TAC.

Additional members can be appointed to the TAC at any time, and must hold an academic appointment in a medical or academic institution in the greater metropolitan Houston area. There is no upper limit to the membership of the TAC, and additional members do not need to be members of the Graduate Faculty, so long as a majority of the TAC members is eligible to train graduate students in their respective programs and institutions. The student and/or their Major Advisor(s) may invite guests to participate in TAC meetings in a non-voting capacity, but the Reporting Member may ask them to leave a TAC meeting for discussion pertaining to academic progress to degree or dispute between student and Major advisor.

Members of the laboratory of the Major Advisor(s) are not eligible to serve on the student's TAC. Spouses or domestic partners of the Major Advisor are not eligible to serve on the student's TAC. This restriction applies to all TAC appointments, beginning in 2019.

The Committee shall be appointed by the Dean upon written request from the Graduate Program Director. The student and Major Advisor suggest the two program faculty and the external faculty member and select the Reporting Member from a pre-approved group of Reporting Members designated by the PEC. The PEC can modify the composition of the TAC when necessary. Requests to change the composition of the TAC are made in writing by the Graduate Program Director to the Dean.

The TAC shall be responsible for monitoring progress made, and for petitioning, with the approval of the Graduate Program Director, to the Dean for exception to any academic regulations.

The TAC may also participate in mediating potential disputes that may arise between the student and the Major Advisor. It shall review requests for dismissal of the student submitted by the advisor and approve or oppose such requests. In these cases, a temporary Chair will be appointed by the Program Director from the TAC members. The TAC's decisions shall be reported in

writing by the temporary Chair to the Program Director who shall inform the Dean regarding substantive changes in the student's progress or status.

The TAC administers the final oral examination component of the thesis defense and approves (by signing) the final copies of the student's dissertation. All members of the TAC must be present at the thesis defense. In the case of unforeseen extenuating circumstances, the student, Major Advisor, and Graduate Program Director may petition the Dean for an exception.

9.3 Appeal of TAC Decisions (Revised 06/16/08)

A student or a Committee member, who disagrees with a TAC decision, may appeal in writing to the Dean.

9.4 Status Reports (Revised 08/01/97, 06/21/02, 04/22/03, 03/31/04, 06/14/07, 06/16/08, 01/16/13)

Graduate students, second year and above, are responsible for meeting with their TAC and submitting a status report at least twice a year. The purpose of these meetings is to ensure that students receive feedback and direction on their thesis research and to promote a timely assessment of progress toward their degree and to help plan future work.

9.4.1 Due Dates (Revised 06/16/08, 1/16/13)

Status reports for second year students are due in the Graduate School by 5:00 p.m. on the last business day preceding December 24 (Year 2 Fall Status Report) and the last business day in June (Year 2 Spring Status Report). For students third year and above, status reports are due by 5:00 p.m. on the last business day in the month of their birth and the 6-month anniversary of their birth month. For the purpose of these status reports, the month of July will count towards the Fall reporting period (e.g. a 2nd year student with a July/January birthday should use the form 'Status Report – Year 3 Fall-Year 4 Fall). There are no extensions of these deadlines, but the TAC meeting may be held at any time between the deadlines. It is the responsibility of the student to schedule and hold the TAC meeting so that they are completed before the deadlines. Since scheduling difficulties may be encountered, the student should begin arranging the meeting significantly in advance of the deadlines. Committee members are expected to respond to the student's request for a meeting in a timely fashion and to be as accommodating as possible in helping the student arrange the Committee meeting. Unanticipated emergencies and other significant extenuating circumstances may be considered by the Dean on a case-by-case basis.

9.4.2 Status Report Contents (Revised 06/16/08, 08/16/19)

The Status Report Form, which must be submitted after the completion of the status report meeting, includes a summary of the meeting prepared by the Major Advisor, an evaluation of the student's progress, and a completed signature page, as well as the student's written summary, and updated publication and award information.

At least five days prior to the Thesis Advisory Committee meeting, the student will submit to all members of the Committee a succinct written summary of their accomplishments since the last Committee meeting, including significant experimental findings, results and/or difficulties with an experimental approach, and the status of any publications. The status report should also include a brief description of plans for experiments in the coming six months. For meetings held during the spring of the student's fourth year and thereafter, a timeline (Section 9.4.2.1) must be submitted with the status report and reviewed by the TAC. The Graduate School strongly recommends that the status report and the TAC meeting follow the guidelines published by the Graduate School (available from the Graduate School web site).

9.4.2.1 Status Report Timeline (New 06/16/08)

The TAC should help ensure that the student is continuing to make timely progress toward the degree. By the spring meeting of the fourth year of enrollment, the student, major advisor, and TAC members must evaluate the student's progress and future plans for completion of the PhD. Before the meeting, the student, in consultation with the major advisor, should prepare a timeline that lists graduation requirements and estimated dates of completion, if possible (i.e. June 20XX, summer 20XX, or too early to predict). The timeline, which must be included with the Status Report Form, is intended to represent the best estimates at the time it is written. The timeline should be revised and updated at each subsequent status report meeting. The timeline should follow the format guidelines established by the Graduate School (available from the Graduate School web site).

9.4.3 The Status Report Meeting (Revised 06/16/08, 08/16/19, 11/25/19)

Status report meetings (except under the special circumstances described in Section 9.4.7) must include the Major Advisor, Reporting Member and at least two other members of the Thesis Advisory Committee. A Committee member (including the major advisor) may be present through teleconferencing or video conferencing arrangements. Substitution of an alternate Reporting Member is possible with approval of the PEC and/or Program Director. Students should not be pressured to bring food or beverages to TAC meetings; therefore, the practice is discouraged, but not prohibited.

9.4.4 Status Report Signature Page (Revised 06/16/08)

Before the meeting ends, the Chair and Committee members will read any notes that might have been taken during the Committee meeting and together they will come to a consensus on the content of the summary statement. Any Committee member who disagrees with the summary and evaluation may append a statement to the status report indicating the basis for their disagreement.

The signatures of the major advisor, all Committee members and the student on the status report form denotes their presence or absence at the meeting and indicates their agreement with the evaluation and summary statement. If one or more Committee members write a dissenting statement, the signatures on the status report form signify that the Committee members and the student have read the dissenting opinion.

If a student disagrees with comments in the summary statement or a Committee member's addendum, he/she may submit a written rebuttal to the status report describing the disagreement. The rebuttal must be submitted within one month of the date of the Thesis Advisory Committee meeting with a copy of the disputed status report. The rebuttal statement must be signed by the Major Advisor, all members of the Thesis Advisory Committee and Program Director in acknowledgment that they have seen it and discussed it with the student. Signatures of the Thesis Advisory Committee, including the Chair, do not indicate that they agree with the student's objections. The signed statement should be submitted to the Graduate School for inclusion in the student's file.

9.4.5 Permission to Write (Revised 06/10/08, 08/03/09, 08/02/10, 08/01/16, 08/16/19, 07/01/21, 07/01/24)

By granting Permission to Write, the student's Thesis Advisory Committee acknowledges that all key experiments have been completed, and a thesis outline describing a sufficient body of work to merit a PhD if the dissertation and defense are satisfactorily completed, was presented and reviewed.

To be eligible to request 'Permission to Write' status, students who matriculate in 2019 or thereafter, must have at least one 1st or co-1st author manuscript accepted for publication in a peer-

reviewed research journal on the topic of their original thesis research. A review article does not satisfy the publication requirement. A co-1st author publication is one in which multiple first/lead authors with equal contributions are designated. Exceptions to this requirement may be approved by the PEC, taking into account the recommendation of the thesis advisory committee. In addition, the student, in consultation with the major advisor, must present a detailed outline of the thesis to the Committee at least two weeks before the meeting. The outline should present sufficient detail to judge the completeness of the experimental work with a clear indication of which portions of the experimental work are finished and which remain to be completed.

The Committee expects that the student will complete all requirements and defend the thesis before the next status report deadline, and a timeline for completion of the written thesis and the oral defense should be set at the time Permission to Write is granted. Permission to Write is not automatically renewed, and if a subsequent status report meeting is held, permission to write must be requested again.

A quorum of the Thesis Advisory Committee (Major Advisor, Reporting Member and two members) is required to hold a meeting to request Permission to Write. Committee members unable to attend the meeting must review the proposed thesis outline and requirements to complete proposed experiments, and if they concur with the Committee to award Permission To Write, sign the status report form in the appropriate section. A single dissent, even from a member not in attendance at the TAC meeting, is sufficient to prevent awarding Permission to Write.

Once Permission to Write is granted, the primary responsibility of the student is to write and defend their dissertation. The student may continue to perform experiments in the lab if they and their major advisor agree, but the student is not obligated to do so.

A student must be making good academic progress, including the completion of the required training in the Responsible Conduct of Research Year 1, Year 2, Year 3 and Year 4 courses when granted Permission to Write. For students in the CSTP PhD program, the ethics requirement can be met by completion of the Responsible Conduct of Research for Clinical Investigators course and Responsible Conduct of Research Year 3 and Year 4 courses. Ethics training requirements cannot be transferred from other institutions. "Permission to Write" status does not relieve the student from any academic requirements including submission of status reports, attendance at seminars, retreats, and other activities required by the Program or the Graduate School.

9.4.6 Late Penalties (Revised 06/16/08, 01/16/13, 07/20/13, 07/29/13, 07/01/25)

The status report meeting is an integral part of a student's progress toward their degree. The Graduate School will maintain a record of each student's extension records and approvals. In special circumstances, students may request an extension to submit their status report (Section 9.4.7). Students are allowed a maximum of three approved extensions throughout their tenure as doctoral students. Students will be notified when they have reached a maximum of allowed extensions. Failure to submit the status report by the listed deadlines will result in penalties as described in this policy.

If a report is not submitted by the deadlines specified for year 2, or year 3 and above students (Section 9.4.1) and the student has had no prior late penalties assessed at previous deadlines, the student will be assessed a $25 fine. If the completed status report is not submitted within 15 calendar days of the original deadline, an additional $50 fine will be assessed and if still delinquent after 30 calendar days from the original deadline, the student will receive a grade of F for Dissertation or Special Projects. The Thesis Advisory Committee will be notified of delinquent status reports.

On the second instance of status report delinquency, the initial fine will be $50 and if still delinquent, 15 calendar days after the original deadline, the student will receive a grade of F for Dissertation or Special Projects. On the third instance of status report delinquency, the student will receive a grade of F for Dissertation or Special Projects immediately after the original deadline.

A grade of F in Dissertation or Special Projects may be sufficient to cause a recommendation for dismissal from the Graduate School by the Promotions Committee (Section 6.8). The student may appeal the grade of F, any fines, and/or their dismissal through the appeals process of the Promotions Committee (Section 6.10).

9.4.7 Special Circumstances (Revised 08/02/10, 08/01/11, 01/16/2013, 08/16/19, 07/01/24, 07/01/25)

Students scheduled to defend their final PhD dissertation or MS thesis within three months of their next status report deadline may submit the "Defense of Dissertation Date" or "Application for a Terminal MS" form to the Graduate School in lieu of the status report, provided the form is received before the status report deadline. If the defense or examination does not occur on the scheduled date, a status report must be submitted within two weeks.

In cases of illness or other unexpected circumstances beyond the student's control that prevent the attendance of the student, major advisor, or a quorum of the committee (two members of the TAC, plus the reporting member and major advisor), the Dean or designee may grant an extension of the status report deadline and waive any penalties. Before requesting an extension, students are expected to consult with their program administrator and/or program director. This consultation helps identify potential issues early, provides opportunity for policy guidance, and ensures that extension requests are made only when absolutely necessary and for legitimate reasons. Last-minute scheduling difficulties, inadequate planning in advance of due dates or failure to ensure quorum during scheduling (including the presence of reporting member or ex officio, as necessary) will not be considered valid reasons for an extension request or approval. Students who believe they have extraordinary circumstances that warrant an exception to this policy may request a fourth extension directly from the Dean.

Remote students (Section 8.3) or students with Remote Advisors (Section 8.4) will be allowed to have one status report meeting conducted by teleconference without returning to BCM if this is approved by the student's Graduate Program. However, the status report and the Status Report Signature page must be completed and submitted on time. At least one Thesis Advisory Committee meeting a year must be held with the student present at BCM along with a majority of the Thesis Advisory Committee present (section 9.4.3), including the local advisor. The Remote Advisor must at least be present by phone or teleconference.

9.4.7.1 TAC Members Leaving BCM (New 07/01/25)

BCM Faculty members that have plans to leave BCM will inform (1) students on whose TACs they serve, (2) the director of the graduate program(s) in which they serve, and (3) the Dean's Office of their scheduled departure date as soon as possible. Faculty members who leave BCM and no longer have full-time appointments will automatically be removed from all TACs on which they serve, effective on their last day at BCM. If a faculty member wishes to continue serving on a student's TAC, they must submit a formal petition to the Program Executive Committee (PEC) and the Program Director 30 days before their departure. The petition must include confirmation that the faculty member is able to fulfill all TAC obligations, including meeting attendance, review of progress, attendance at the final dissertation defense in person, and a commitment that their participation will not hinder the student's progress or delay any status reports, PTW requests, or dissertation defenses. Part of the petition will include a plan for management

of travel and attendance at any required in-person TAC meetings and the defense. Requests approved by the Program will be submitted to the GSBS for final approval by the Dean.

Faculty remaining on a TAC after leaving BCM who are later unable to fulfill their duties (e.g. attend required meetings or the defense, missed meetings, or fail to respond to scheduling requests), may be removed and replaced by an interim or newly appointed member to ensure timely progression of the student. Faculty members who have an approved petition to participate on the TAC may attend meetings remotely via teleconferencing or video conferencing, as per the established guidelines for remote attendance. However, they are required to attend the student's final dissertation defense in person. In the case of unforeseen extenuating circumstances impeding in-person attendance, faculty can petition the Dean for this requirement to be waived.

9.5 The Seven Year Rule (previously part of 8.1)

9.5.1 Monitoring student progress at the beginning of Year 6 (Revised 08/03/09, 07/20/13, 08/01/16, 07/01/21)

The purpose of PhD training is for the student to develop the ability to function as an independent researcher. This includes maintaining steady progress toward completing the degree and the development of critical research skills and knowledge. This responsibility is shared among the student, his or her Major Advisor, the TAC and the Graduate Program. Once a student has entered their sixth year of study (including time on LOA), unless they have already received permission to write, the student's Program Executive Committee will appoint an *ex-officio* member to the student's Thesis Advisory Committee from the Program Executive Committee or another designated member of their program faculty. The student or any member of the Thesis Advisory Committee may, at any time, request that the Graduate Program appoint an *ex-officio* member. The Promotions Committee, at their discretion, may place an *ex officio* member representing the Promotions Committee on the student's TAC to monitor the student's progress toward the degree.

The *ex-officio* member must be present at the Thesis Advisory Committee meetings beginning at the Fall status report of year six and continuing until the student sets a defense date. The role of the Program's *ex-officio* member is to monitor the student's progress and to ensure that progress toward degree, alternative strategies, and an appropriate time-line for graduation has been presented and discussed at the Committee meeting. The Program's *ex-officio* member may not vote in any decisions of the Committee. After the meeting, a written evaluation (*ex-officio* check list) must be completed by the *ex-officio* member and submitted to the Program Director for review. The Program Director should discuss the report with the student and their major advisor. The *ex officio* report is available to the Promotions Committee. For students with an appointed *ex-officio member*, a status report must be accompanied by the *ex-officio* report.

9.5.2 Extension of the Seven Year Rule (Revised 08/03/09, 07/29/13, 08/01/16, 08/01/20, 07/01/24)

No more than 7 years may elapse between matriculation into the Graduate School, excluding leaves-of-absence and suspension, and completion of all degree requirements for the PhD degree.

Unless a student already has Permission to Write before their Year 7 Fall TAC meeting, they must present a detailed graduation plan, inclusive of a timeline to their TAC. The TAC will review the plan and provide feedback. The graduation plan, agreed to by the student, major advisor, TAC and Program Director, will be submitted along with the student's status report, and will be reviewed at the next Promotion Committee meeting. Students who receive permission to write at their Year 7 Fall TAC meeting do not need to submit a graduation plan. If the plan is deemed acceptable, it will serve as the starting point for the Promotions Committee to monitor student progress until permission to write is awarded and the dissertation defense has been completed. If the plan is

deemed unacceptable, it will be returned to the student and major advisor for revision and subsequent resubmission for review by the Promotion Committee. At any subsequent TAC meeting, the student must present and discuss an updated graduation plan and timeline and submit the TAC-approved version with their status report for Promotion Committee review.

Unless a student will defend their dissertation by the end of their 7th year, they must present a detailed graduation plan at the Spring TAC meeting preceding the beginning of the student's 8th year. The TAC, at the Spring TAC meeting preceding the beginning of the student's 8th year, will review the updated graduation plan and determine whether to recommend a 6-month extension of the Seven Year Rule. If the TAC recommends an extension, a graduation plan agreed to by student, major advisor, TAC and Program Director must be submitted along with the status report for review by the Promotions Committee. If the TAC does not recommend an extension, it must provide a written summary of the rationale for their decision within 1 week to the student and Promotions Committee. The student can appeal the recommendation of the TAC to the Promotions Committee.

The graduation plan must be updated and presented at each subsequent TAC meeting, and the TAC must make a determination of whether to recommend a further extension of the Seven Year Rule. If the TAC recommends an extension, the updated graduation plan agreed to by student, major advisor, TAC and Program Director must be submitted to the Promotions Committee along with their status report. If the TAC does not recommend an extension, it must provide a written summary of the rationale for their decision within 1 week to the student and Promotions Committee. The student can appeal the recommendation of the TAC to the Promotions Committee.

The Promotions Committee will consider the recommendations of the TAC, the student's Program Director and the Program's *ex-officio* Committee member, in addition to the student's graduation plan, and make a recommendation to the Dean concerning the request to waive the Seven Year Rule with or without imposition of defense and/or graduation deadlines.

If a student has defended prior to the beginning of their 8th year, a waiver of the 7-year rule will be granted automatically to accommodate the two-month period for revision between the defense and the submission of the final thesis.

9.6 Credit Requirements (Revised 08/03/09, 07/01/21)

The PhD requires satisfactory completion of 180 term hours. A minimum of 60 term hours of course work is required (includes Special Projects, Research Rotation, Seminar and Readings and other courses). Thirty term hours of this requirement must be from didactic courses which either:

1) are designated as a 6000 level course, or 2) have a letter grade assignment of A-F ("letter graded" courses) and are graded by objective criteria, or 3) are designated by the Curriculum Committee as "approved Pass/Fail" didactic courses (excluding seminars and journal clubs).

Any course counting toward the 30-hour requirement must be approved by the Curriculum Committee. Special Topics courses (course number xxx-463 or GS-xx-5000) cannot be applied to the 30-hour requirement.

At least 24 of the required 30 term hours must come from courses assigning a letter grade; 6 term hours may come from the approved Pass/Fail category. For courses grades on a Pass/Fail basis that are offered for graduate credit at another institution or by the School of Medicine, more than 6 term hours of Pass/Fail courses can be used toward the 30 term hour requirement if the courses are required by a BCM Graduate Program and after review and approval by the Curriculum Committee on a case-by-case basis.

"Letter-graded courses" must be graded A, B, C or F and grades must be assigned by objective criteria, i.e. by examination. Approved Pass/Fail courses must also use specific grading criteria. While such

criteria may not include written exams *per se*, each approved Pass-Fail course must utilize appropriate assessment tools, consistent with the educational goals of the course: (e.g. a paper, an oral presentation, homework, problem solving).

The remaining 120 term hours may consist of any courses approved by the Curriculum Committee and listed by a Program in the catalogue, including dissertation research. Specific required courses might differ among the various Programs as long as they conform to the above requirements.

At the beginning of the academic year, each Program will define their degree plan of specific course requirements (didactic and non-didactic), including any tracks or groups of flexible required electives for students matriculating in that year. The degree plan must be filed with the Graduate School and made available to all students matriculating in that year. Any request to change the required courses specified by the degree plan must be approved by the student's graduate program and the Promotions Committee. Students must repeat any required course when they receive a grade of C or F; however, the Program may determine if elective courses, including flexible requirements, must be repeated.

9.7 Transfer of Credit (Revised 04/22/03, 06/14/05, 08/03/09, 06/18/15, 8/27/15, 08/16/19, 07/01/22)

A student may request transfer of graduate level course work completed (with grades of B or above) at another regionally accredited academic institution, provided that the course(s) were taken within 5 years of the date of matriculation at BCM. Only those courses in which a grade is assigned as the result of an examination (not seminar, special projects, or research) will be considered by the Promotions Committee for transfer. Courses shown on the transcript for a previously conferred degree are not eligible for transfer. Course work completed at a university outside the USA will be considered on a case by case basis.

A maximum of 60 term hours (30 semester hours) may be submitted for transfer. Of the 30 hours required for Admission to Candidacy, individual Programs may set different limits on the number of hours that may be transferred, but no more than 24 hours of transfer credit will be allowed.

As an exception, BCM School of Medicine courses that are offered for Pass/Fail credit can be considered for transfer of credit and used toward the 30 term credit hours of didactic course work if specific grading criteria are utilized to evaluate student learning, and the course content has been reviewed and approved by the GSBS Curriculum Committee. BCM School of Medicine courses that are pre-approved for transfer credit by the Promotions Committee will be automatically allowed as transfer credit upon completion of a Transfer of Credit form. Other BCM School of Medicine courses will be considered by the Promotions Committee on a case-by-case basis.

Students may petition the Promotions Committee to waive specific course Degree Plan requirements based on prior completed graduate level coursework. Requests for waivers must be justified. Approval of a course waiver request is not automatic, and requires recommendation by the Graduate Program. Petitions should be submitted in sufficient time for the Promotions Committee to adjudicate before the required course begins.

The specific courses transferred will not be listed on the graduate school transcript, only total credit hours transferred. Additionally, the Graduate School complies with the BCM Acceptance of Transfer Credit Policy (Section 23.1.05) that provides criteria for evaluating, awarding, and accepting transfer credit by examination, advanced standing and professional certificates.

9.8 The Qualifying Examination (Revised 11/13/96, 06/16/08, 08/16/19, 08/01/20, 07/01/24)

The purpose of the qualifying exam is to determine whether the student has sufficient general and discipline-specific knowledge, oral and written communication skills, and intellectual ability to successfully carry out independent, scholarly research that will satisfy the requirements for awarding of the PhD degree. The qualifying exam is administered by the individual Graduate Programs, following GSBS-wide guidelines. In general, the exam tests the ability of the student to formulate a significant

scientific hypothesis, to identify, develop and articulate an original approach to experimentally test the hypothesis and interpret the possible results, and to discuss the proposed project with respect to the relevant body of knowledge.

All PhD students must take the Qualifying Examination by the end of their 2nd year of enrollment. The student must pass all pre-requisite activities defined by their Program before taking the Qualifying Examination with no more than three unresolved non-passing didactic/6000-level credits. Any exception must be approved by the Dean. Passing the Qualifying Exam is a requirement for Admission to Candidacy.

Each Program's PEC selects up to 4 individuals to serve as Qualifying Exam Chairs. The Qualifying Exam Chairs jointly share the responsibility of chairing all qualifying exams in a given year. The Qualifying Exam Chairs shall recommend the examination date and select members of the Examining Committee that shall consist of a Qualifying Exam Chair, two members of the TAC and two members of the program's faculty. If the TAC has not been appointed prior to the examination, the QE Chairs shall select two program members with expertise in the field of the proposal in place of TAC members. All members of the Examining Committee are voting members. The student's Major Advisor must attend the examination but serves solely as a silent observer.

Qualifying Exams are to be held in person. It is the responsibility of the student to submit the completed Qualifying Examination Date form to the GSBS for approval prior to the date of the exam. Once the examination date has been set, if any member of the Examination Committee finds he/she cannot be physically present at the examination, he/she may seek approval from the relevant Program Director to attend virtually. If a committee member is unable to attend the examination due to emergency circumstances, the Qualifying Exam Chair must obtain permission from the Dean, prior to the start of the exam, to proceed with an absent committee member. The GSBS Qualifying Exam Procedures and Rules document provides additional guidance on the conduct of exams.

Transfer students must take the Qualifying Exam at BCM and all exceptions must be approved by the Promotions Committee.

9.8.1 Results of the Examination (Revised 08/29/97, 02/05/00, 11/08/07, 07/29/13, 08/21/14, 07/01/22)

All phases of the examination process must be complete before indicating a result on the "Result of Qualifying Examination Form." There are three possible outcomes of a Qualifying Examination: **Pass**, **Incomplete**, or **Fail**. The result of the Qualifying Examination is certified by the Examining Committee, the Program Director, and endorsed by the Dean (Result of Qualifying Examination Form).

A **Pass** is awarded to students who successfully complete the examination.

An **Incomplete** is used when the Examining Committee determines that the student's performance is inadequate and that additional requirements must be completed to remedy the deficiency. The additional requirements must be specified by the Examining Committee on the Result of Qualifying Examination Form, including a date by which the additional requirements must be completed (the Program Director and the Dean must sign the Result of Qualifying Examination Form). After the requirements stipulated by the Examining Committee have been satisfied, the Examining Committee and Program Director will notify the Dean using the Result of Qualifying Examination Form and the student's academic record will be updated from incomplete to Pass. If the requirements to remediate an incomplete are not completed satisfactorily, the Examining Committee and Program Director will notify the Dean using the Result of Qualifying Examination Form and the student's academic record will be updated from Incomplete to Fail on the date the Program submits written verification of the resolution of the incomplete.

A **Fail** is awarded if the student's performance on the Qualifying Examination is unsatisfactory, either at the initial examination or when an incomplete is resolved with a grade of Fail. Failure of the Qualifying Examination is reported to the Promotions Committee and the student will be placed on Academic Probation. A student who Fails their initial Qualifying Examination may be recommended for dismissal to the Dean by the Promotions Committee. A second Qualifying Examination may be taken only if recommended by the student's Program. Students remain on Academic Probation until successfully completing a second qualifying exam.

The second examination must be taken within six months of the initial examination date. In the event of a second Failure, the student will be recommended for dismissal by the Promotions Committee. To appeal this recommendation of dismissal, see Article 6.10.

9.9 Admission to Candidacy for the PhD Degree (Revised 06/23/99, 01/25/02, 06/14/05, 08/02/10, 08/16/19, 8/1/20, 07/01/21)

A student is accepted into candidacy only after successful completion of the Qualifying Exam and passing the curriculum specified by the student's degree plan, including the completion of 60 term hours of which 30 term hours must be in courses that meet the credit requirements as described in section 9.6, and completion of the first two years of the ethics requirement. The ethics requirement must be met by completing Responsible Conduct of Research Year 1 and Year 2, or for CSTP students can be met through the Responsible Conduct of Research for Clinical Investigators course. Ethics training requirements cannot be transferred from other institutions. Students on academic warning or probation are not eligible for admission to candidacy.

The TAC must be appointed prior to admission to candidacy. Admission to candidacy must be approved nine months (36 weeks) prior to the date of dissertation defense. A student with transfer credit must have spent at least four academic terms in residency before admission to candidacy. He/she must present 48 term hours of course work completed in residence. Admission to candidacy requires approval of the Graduate Program Director and the Dean via the Admission to Candidacy Form. Students who are not admitted to candidacy by the end of their second year will be reviewed for potential academic action by the Promotions Committee and Dean. Any exception to the two-year rule must be approved by the Program Director and the Dean.

9.10 Other Examinations

Programs reserve the right to examine students upon admission or during their studies to determine their qualifications for graduate work. Such examinations shall not be the Qualifying Examination for admission to PhD candidacy, but purely a Program procedure. Based on its evaluation of these exams, the Program may recommend to the Promotions Committee that the student be placed on probation or dismissed from the Program.

9.11 Candidates for the Master of Science Degree (Revised 08/30/01, 06/16/08, 01/29/2015, 06/18/15, 07/01/21, 07/01/23)

The Graduate School considers applications for master's degree admission for the Clinical Scientist Training Program (CSTP) and medical students participating in the School of Medicine Research Track (MSRT). A student in a PhD program may request permission to terminate graduate study by completing the requirements for a Master's degree. Eligibility for the terminal Master's degree may be considered when a student is not able to complete the requirements for a PhD degree.

The MS requires satisfactory completion of 84 term credit hours and all Program curriculum requirements. Thirty (30) term hours of this requirement must be from courses which either: 1) are designated as a 6000 level courses, or 2) have a letter grade assignment of A-F ("letter graded" courses) and be graded by objective criteria, or 3) are designated by the Curriculum Committee as "approved Pass/Fail" graded courses (excluding seminars and journal clubs). Any course that counts toward the 30-hour requirement

must be approved by the Curriculum Committee as didactic credit. Special Topics courses (course number xxx-463 or GS-xx-5000) cannot be applied to the 30-hour requirement.

At least 24 of the required 30 term hours must come from courses assigning a letter grade; 6 term hours may come from the approved Pass/Fail category. More than 6 term hours of courses graded on a P/F basis that are offered for graduate credit at another institution or by the School of Medicine can be used toward the 30 term hour requirement if the courses are required by a BCM Graduate Program and are reviewed and approval by the Curriculum Committee on a case-by-case basis.

"Letter-graded courses" must be graded A, B, C or F and grades must be assigned by objective criteria, i.e. by examination. Approved Pass/Fail courses must also use specific grading criteria. While such criteria may not include written exams, each approved Pass-Fail course must utilize appropriate assessment tools, consistent with the educational goals of the course: (i.e. a paper, an oral presentation, homework, problem solving, etc.).

The remaining 54 term hours may consist of any course approved by the Curriculum Committee and listed by a Program in the catalogue, including dissertation research.

At the beginning of the academic year, each MS Program admitting students (e.g. CSTP, MSRT) will define their degree plan of specific course requirements (didactic and non-didactic), including any tracks or groups of flexible required electives for students matriculating in that year. The degree plan must be filed with the Graduate School, and made available to all students matriculating in that year. Any request to change the required coursework specified by the degree plan must be approved by the student's graduate program and the Promotions Committee. Students must repeat any required course when they receive a grade of C or F; however, the Program may determine if elective courses, including flexible requirements, must be repeated.

9.11.1 Qualifications for the Terminal Master of Science Degree (New 08/30/01, Revised 08/03/09, 08/01/11, 01/29/2015, 06/18/15, 08/01/16, 07/30/18, 07/01/22)

To be eligible to apply for a terminal master's degree, a student must have completed the 30 credit hour didactic coursework requirement specified by the student's degree plan, and have appointed their TAC. The applicant's Program must submit to the Dean a request to apply for the M.S. degree (Application for a Terminal M.S. Form). The request should confirm that the applicant meets the requirements, outline any additional requirements placed on the applicant by the Program (i.e. a formal defense and/or public seminar may be required) and indicate a date by which the completed thesis must be submitted to the Graduate School. A student granted permission for a terminal M.S. degree and who is enrolled as a student must fulfill all requirements for attendance at seminars or other Program activities (see section 9.4.7 regarding requirements for Status Reports). The request must be signed by the applicant, the applicant's major advisor, all members of the TAC, and the Program Director.

If the request is approved, the applicant shall prepare a thesis based on original work completed to date which must be submitted to the TAC no less than one week prior to the thesis examination. The thesis will be evaluated by the student's TAC in a closed session oral examination. Successful defense of the thesis shall be indicated by the signatures of the entire Committee on the Defense of MS Thesis Result form. The preparation of the thesis should be guided by the policies found in sections 10.2 and 10.2.1. If the Committee notes deficiencies, all corrections must be made prior to Committee acceptance and signature.

Once accepted and signed by the Committee, the Director of Graduate Studies shall sign the thesis. An original, signed copy of the thesis and three additional copies must be presented to the Graduate School for acceptance, binding, and archiving as part of the degree requirements. At the time the Dean accepts and signs the thesis, the student shall have completed all academic

obligations for the degree and be making good academic progress. After the Dean signs the thesis, the student will be eligible to have the degree conferred. If awarded a terminal M.S. degree, a student cannot be admitted to any Graduate Program at BCM without successfully re-applying to graduate school.

9.11.2 Qualifications for the Master of Science Degree in CSTP (New 08/30/01, Revised 08/23/04, 01/29/2015, 06/18/15, 07/01/25)

The Clinical Scientist Training Program accepts students who seek the Master of Science degree. To be eligible for the degree, a student must complete the Program required curriculum including 60 term hours of which 30 must be in courses that meet the credit requirements as described in section 9.5. Upon satisfactory completion of the research project approved by the TAC, the thesis is prepared and defended before the Final Examination Committee. The preparation of the thesis should be guided by the policies found in sections 10.2 and 10.2.1. Upon approval of the thesis by the Final Examination Committee, the thesis is signed by the Committee members and the Director of the CSTP Program and presented to the Dean for signature. At the time the Dean accepts and signs the thesis, the student shall have completed all academic obligations for the degree and will be eligible to have the degree conferred. An original, signed copy of the thesis and three additional copies must be presented to the Graduate School for acceptance, binding, and archiving as part of the degree requirements.

9.11.3 Pursuit of an M.S. Degree by School of Medicine Students Participating in the Medical Research Pathway (New 06/16/08, Revised 01/29/15, 08/16/19, 07/01/22)

Medical students participating in the School of Medicine's Medical Research Pathway (MRP), at any time during their first year of research as part of the MRP Program, may apply to a Graduate Program for the M.S. Degree. Accepted students will matriculate into the Graduate School during their leave from School of Medicine. MRP students may be on leave from School of Medicine for no more than two years. Requirements for the M.S. degree include 30 term hours of graduate course work, with no more than 24 hours transferred from School of Medicine courses, the appointment of a major advisor and Thesis Advisory Committee. Students matriculated in the MRP-based M.S. Program must submit status reports during their time of enrollment as a graduate student.

Completion of the MRP-based M.S. requires presentations and defense of a written M.S. thesis. All requirements for the MRP-based M.S. degree must be completed prior to the student's graduation from School of Medicine. The preparation of the thesis should be guided by the policies found in sections 10.2 and 10.2.1. After its defense and satisfactory completion of any needed corrections, the thesis must be signed by the members of the Thesis Advisory Committee and Program Director and submitted to the Dean for final approval. At the time the Dean accepts and signs the thesis, the student shall have completed all academic obligations for the degree and will be eligible to have the degree conferred. If awarded an MS degree through this Program, a student cannot be admitted to any Graduate Program at BCM without successfully re-applying to graduate school.

9.12 Publication Policy for Students and Postdocs (New 08/01/11)

Communication of research results to the scientific community is an integral part of research activity and is especially important for trainees (students and postdoctorals). Major advisors are expected to give students and postdocs, even those that are no longer in the laboratory, the opportunity to satisfy all the criteria for authorship as specified in the BCM Authorship Policy when they have contributed work to a manuscript. The Policy on Authorship (Section 02.9.40) states in part:

> "An author is one who has met all of the three criteria a) made a substantial contribution to the conception and design of the project, acquisition of data, the analysis and interpretation of the data,

or other substantial scholarly effort; b) participated in drafting and/or revising the Publication critically for important intellectual content; and c) approved the final version to be submitted"

ARTICLE 10. GRADUATION

10.1 Dissertation Examining Committee (Revised 11/11/99, 08/01/16)

The Examining Committee is appointed by the Major Advisor, in consultation with the Program Director and is approved by the Dean. The Examining Committee shall be composed of the student's TAC, and any additional ex-officio members deemed appropriate by the Major Advisor and Program Director. A student must be making good academic progress to schedule the defense dissertation.

10.2 The Dissertation (Revised 08/30/01)

The PhD dissertation represents an authoritative contribution to scientific knowledge and demonstrates that the student has the intellectual and technical ability to conduct an independent and scholarly research project. The PhD dissertation is an academic document submitted by the student to the Graduate School following the defense and approval of the entirety of the document by the Dissertation Committee. The Committee members shall indicate their approval of the dissertation by signing on the Approval Page. No signatures may be affixed until all changes are completed as requested by the Committee members. Unanimous approval of the dissertation is required. The dissertation shall consist of original scientific research carried out by the student. Collaborations or participation by others and the conduct of the work shall be clearly defined. The dissertation shall reach conclusions that are a logical result of the experiments performed. Sufficient experimental details shall be included to allow the work to be reproduced by an individual skilled in the methodology, from the information provided. The dissertation can include information already published by the student, but this fact must be acknowledged by appropriate references, and the text and data presentations must be reformatted to conform to the dissertation style. Any experimental results obtained by others and included in the original publication must either be expunged from the dissertation or attributed by name in footnotes or text citations to the original experimenter. The form of the dissertation shall follow a standard format as outlined below.

10.2.1 Format and Organization of the Dissertation (Revised 08/30/01)

Detailed instructions for completing the dissertation, its defense, submission to the Graduate School, and text format are available from the Graduate School Office in a document entitled, "Instructions for Submitting a Thesis or Dissertation." In those instances when published work is to be incorporated in the dissertation suitable adjustments in style shall be made to bring all sections of the document into a uniform presentation style, including bibliographic citations.

Section Name	Order	Section Name	Order
Title Page*	1	Introduction & Background	8
Approval Signature Page	2	Methods & Materials	9
Acknowledgments	3	Results	10
Abstract	4	Discussion	11
Table of Contents	5	Summary & Significance	12
List of Figures	6	Bibliography	13
List of Tables	7	Appendices	14

* For the PhD dissertation, the Title Page shall bear the exact title of the dissertation, followed by the statement: "A Dissertation submitted to the Faculty of The Graduate School of Biomedical Sciences of BCM in Partial Fulfillment of the Requirements for the Degree of Doctor of Philosophy by *name of student*. Houston, Texas, *Month, Year*." For the M.S. thesis, the Title Page shall bear the exact title of the thesis, followed by the statement: "A Thesis submitted to the Faculty of The Graduate School of Biomedical Sciences of BCM in Partial Fulfillment of the Requirements for the Degree of Master of Science by *name of student*. Houston, Texas, *Month, Year*."

The Introduction and Background (Section 8) shall constitute a literature review which sets the stage for the research and its rationale.

The order of sections 9, 10 and 11 may be repeated or combined to facilitate production of the dissertation's chapters from the student's scientific publications. It is usual to choose to combine all methods sections together, but at the student's and Committee's discretion sections may be kept apart for clarity. Similarly, results and discussion can appear together in discrete chapters separated by content or specific aims. These sections must, however, be reformatted to conform to the dissertation style.

Individual chapters may contain their own discussion sections. However, at the end of the dissertation the Summary and Significance section should re-capitulate the salient findings and conclusions of the work and place these observations in the context of current studies in that field. The student is encouraged to use this section to speculate on the work's significance, and/or to recommend future avenues of fruitful experimentation.

The dissertation is an academic document submitted by the student to the Graduate School

10.2.2 Defense of the Dissertation

10.2.2.1 Scheduling the Defense of Dissertation (Revised 11/11/99, 08/16/19)

Within 3 months of receiving Permission to Write, the student should identify their dissertation defense date. All members of the Examining Committee are expected to be in attendance at the dissertation seminar and defense, and scheduling done sufficiently in advance so that all Committee members can be present. Committee members should acknowledge their acceptance of the examination date by signing and dating the form. When necessary, a Committee member can attend the defense by video conferencing with the permission of the Dean. Once the date of the examination has been set, members can be excused from attendance only under extraordinary circumstances. Permission to be absent from a dissertation defense examination must be requested by the Committee member and acknowledged by the Dean prior to the examination date.

10.2.2.2 Defense of Dissertation (Revised 11/11/99, 08/02/10, 08/16/19, 07/01/24)

The students must submit the dissertation to the Examining Committee no less than two weeks prior to the defense. The dissertation should be complete and near to its final form. A public dissertation seminar must be presented in an in-person format before the final defense. The student and members of the Examination Committee must be present in the seminar room. Students may elect to offer a virtual option for non-Examining Committee persons to view the public seminar. At the conclusion of the public seminar, the Examining Committee will meet with the student in either closed or open session (at the discretion of the student's Graduate Program) for the final dissertation examination. The final dissertation examination must be held in person with the student and all members of Examination Committee present. Exceptions to this can be considered for extraordinary circumstances, and the student and/or major advisor must seek approval from the Dean for any alterations to the requirement that all Examination Committee members attend the defense in person. Successful defense

of the dissertation shall be indicated by the signatures of the entire Committee and the approval of the Dean (Result of Defense of Dissertation form).

If unexpected circumstances prevent the occurrence of the defense, it should be rescheduled as soon as possible. Any status reports that were waived because of the schedule defense become due.

If there are any significant deficiencies of the thesis (other than typographical errors) that must be corrected before final approval, these should be indicated directly on the results form or on attached pages. A single dissenting vote is sufficient grounds for Failing the dissertation defense. Failure of the dissertation defense can be appealed to the Promotions Committee by the student or the student's Major Advisor. The Promotions Committee may recommend to the Dean to uphold the Failure, award the PhD, appoint a new Committee and examination, or recommend another examination of the student by the same Committee. The defense of dissertation should be satisfactorily completed at least one month before the intended date of graduation.

10.2.3 Submission of Completed Dissertation with Revisions (Revised 1/02/06, 08/03/09, 08/01/16, 08/01/20)

The student should submit the final thesis and graduate as soon as corrections and requirements are complete. A period of two months following the defense is allowed for students to make thesis corrections and satisfy any graduation requirements imposed by their Examining Committee. No later than the end of this two month period, the amended dissertation must be prepared in final form, signed by all members of the Examining Committee and Program Director, approved by the Dean, and submitted for binding. Any extension of the two-month deadline for submission of the final dissertation must be requested by the student prior to the deadline, and approved by the Dean.

It is the student's responsibility to submit the original and three copies of the dissertation, completely ready for binding, to the Graduate School office in order to complete degree requirements. At the time the Dean accepts and signs the dissertation, the student must not be on Academic Warning or Academic Probation, will have completed all academic obligations for the degree and will be eligible to have the degree conferred. The official date of graduation will be the day the dissertation was signed by the Dean.

The final thesis must be submitted by the deadline specified by GSBS each year for the student to participate in the annual graduation ceremony. The Graduate School cannot verify completion of the degree until all requirements, including submission and approval of the dissertation are complete.

10.3 Financial Clearance (Revised 08/01/20)

During the 4th year of enrollment, each PhD candidate must pay a graduation fee. The graduation fee for MS students is payable in the 2nd year of enrollment. Other fees payable prior to graduation are the dissertation or thesis binding fees. The student must be certified to be free of debts and obligations to the BCM before the degree can be conferred. This is accomplished by completing a Graduation Clearance Form requiring validating signatures from the various offices of the BCM or TMC Library with whom the student could have done business. All signatures must be obtained. Failure to do so will prevent release of any official documents. A student in financial obligation to the school should quickly move to dispose of the debt.

10.4 Commencement (Revised 07/01/16, 08/01/16, 08/01/20)

Instructions for the annually scheduled graduation ceremony originate from the Graduate School. The graduating student is responsible for meeting these requirements.

ARTICLE 11. BCM SEXUAL HARASSMENT AND SEXUAL VIOLENCE (New 04/24/03, Revised 01/16/04, 04/08/2015, 08/27/2015, 08/01/16, 07/30/18, 08/01/20)

BCM Title IX of the Education Amendments of 1972, 20 U.S.C. §1681, prohibits discrimination based on sex in all Programs or activities that receive Federal financial assistance. Title IX also prohibits sexual harassment, including same-gender harassment and student-to-student harassment. BCM does not discriminate based on sex and will not tolerate discrimination which includes sexual harassment, sexual violence, dating violence, domestic violence and stalking. Incidents of sexual harassment, sexual violence, dating violence, domestic violence and stalking are taken seriously. Reports will be promptly investigated and appropriate actions will be taken to remedy the effects of the harassment or violence and prevent the reoccurrence. Students should refer to the BCM Sexual Misconduct and Other Prohibited Conduct policy (Section 02.2.26) for more detailed information.

A student who experiences sexual harassment, sexual violence, dating violence, domestic violence and/or stalking may contact the BCM Title IX Director for assistance.

Title IX Director
Toni Gray
title-ix@bcm.edu
713-798-8137

A student may also report to the BCM Security Office via the campus emergency line at 8811 or the non-emergency campus extension of 8-8300. The BCM Security Office can assist students with filing a report with local law enforcement and in the case of any emergency encourages you to call the police at 911. BCM complies with the Family Educational Rights and Privacy Act (FERPA), and to the extent possible will protect the privacy of all persons involved in the report of sexual harassment, sexual violence, dating violence, domestic violence and/or stalking.

In accordance with Texas state law, students should be aware that all BCM employees, in the course and scope of their employment, must promptly report to the Title IX Director if they witness or receive information, about sexual harassment, sexual assault, dating violence, or stalking which involves a current student or employee. Students are not required, but can elect to make reports to the Title IX Director if they witness or receive information. Students wishing to make a confidential report should consult BCM policy 02.2.26 for information on confidential reporting resources.

BCM does not tolerate acts of retaliation. Individuals responsible for retaliation against any person who provides information, or participates in an investigation or the adjudication of a report will be met with disciplinary action up to and including removal from the BCM community. See BCM Whistleblower policy (Section 02.10.10) and Policy Regarding Harassment, Discrimination, and Retaliation (Section 02.2.25).

BCM provides prevention programs and education to faculty, staff and students in an effort to dispel the myths, address the effects, and reduce the occurrence of sexual harassment, sexual violence, dating violence, domestic violence and stalking. More information on BCM's efforts, options for reporting and available support services can be found by visiting the Compliance webpage.

ARTICLE 12. STUDENT SERVICES (New 07/30/18, 08/01/20, 07/01/23)

12.1 Wellness Intervention Team

The Baylor College of Medicine (BCM) Wellness Intervention Team (WIT) effectuates a coordinated institutional response to a health or wellness crisis causing student distress, when the student is referred by the Dean or Designee. WIT does not provide emergency services or immediate, direct intervention with students purported to be in distress, but primarily coordinates an acute care assessment of the health

and safety of students and links them with necessary resources to promote mental, emotional, psychological, or physical wellness and well-being. The School Dean or Designee will activate the WIT to initiate one of these primary functions, as appropriate: Acute Care & Crisis Management, Access to Academic & Non-Academic Support Resources, or Processing of Long-Term Leave of Absence (LOA) Requests & Returns from LOA. Further information regarding WIT functions is available in the Student Leave of Absence Policy (23.1.12). Students referred to WIT may register dissent or concern regarding the WIT process by filing a Grievance, as described in the Student Appeals and Grievances Policy (Section 23.1.08). For further details about the WIT purpose and process, contact the GSBS Dean or studentservices@bcm.edu.

12.2 Office of Education Affairs

The Baylor College of Medicine (BCM) Office of Education Affairs provides a variety of resources and services to learners across schools and programs that enhance academic excellence, health and wellness, student engagement, and administrative support. Services include career advising, academic advising, mental health support, and more. Click here to access the Student & Trainee Services Handbook and webpages with information about all resources and services provided through the Office of Education Affairs.

NOTICE OF NON-DISCRIMINATORY POLICY

BCM and the Graduate School of Biomedical Sciences admits students of any race, gender, ethnic or national origin, sexual orientation, disability, economic status or age to all the rights, privileges, Programs, and activities generally accorded or made available to students at the school. It does not discriminate on the basis of race, gender, ethnic or national origin, sexual orientation, disability, economic status or age in administration of its educational policies, admissions policies, scholarship and loan Programs, and other school-administered Programs.

Appendix A: New Student-Related Policies Published by Baylor College of Medicine, July 1, 2025 to Present

Note: Information regarding new and revised BCM Policies can be found here.

New or Revised?	#	Policy Title/Link	Stakeholders Affected	Purpose	Pub Date

GSBS Course Descriptions

Interpreting Course Numbers: The first digit indicates if the course counts toward the 30-credit didactic hour requirements for all graduate students. Courses starting with 5 are non-didactic and do not count toward the 30-credit requirement. Courses starting with 6 are didactic and do count toward the 30-credit requirement. Courses starting with a 4 are designated for students in specified programs and are not open to PhD or CSTP students. The second digit indicates the number of credits in the course. (Zero denotes a course with a variable number of credits depending on student scheduling needs.) The last two digits are an internal identifier of the course.

Foundational & Interdisciplinary Courses (GS-GS)

GS-GS-5010
MSTP Reading
MSTP Reading provides MSTP students early in their combined physician-scientist training with in-depth exposure to critical reading of the current biomedical literature in order to improve their ability to identify and design research strategies for solving current biomedical problems.

GS-GS-5101
Responsible Conduct of Research-Year 1
The Responsible Conduct of Research (RCR) series of courses combine the National Institutes of Health curriculum for RCR education for pre-doctoral trainees with topics promoting personal and professional development for graduate students. The course consists of a series of lectures and small-group discussions with faculty members. Attendance is mandatory at all sessions. During year one, topics include data acquisition, authorship, public policy, rigor, reproducibility, menteeship, goal setting, and resilience.

GS-GS-5102
Responsible Conduct of Research-Year 2
The Responsible Conduct of Research (RCR) series of courses combine the National Institutes of Health curriculum for RCR education for pre-doctoral trainees with topics promoting personal and professional development for graduate students. The course consists of a series of lectures and small-group discussions with faculty members. Attendance is mandatory at all sessions. During year two, topics include research with animal subjects, research misconduct, safe laboratory practices, and conflict resolution.

GS-GS-5103
Responsible Conduct of Research-Year 3
The Responsible Conduct of Research (RCR) series of courses combine the National Institutes of Health curriculum for RCR education for pre-doctoral trainees with topics promoting personal and professional development for graduate students. The course consists of a series of lectures and small-group discussions with faculty members. Attendance is mandatory at all sessions. During year three, topics include peer review, collaborative research, collaboration with industry, authorship, conflicts of interest, rigor, reproducibility, and motivation.

GS-GS-5104
Responsible Conduct of Research-Year 4
The Responsible Conduct of Research (RCR) series of courses combine the National Institutes of Health curriculum for RCR education for pre-doctoral trainees with topics promoting personal and professional development for graduate students. The course consists of a series of lectures and small-group discussions with faculty members. Attendance is mandatory at all sessions. During year four, topics include research with human subjects, the Scientist as integral part of society, tools for completing the dissertation, and a review of the requirements for graduation with the PhD degree.

GS-GS-5105
Scientific Writing
This course increases student knowledge and skills in effective scientific writing. Students will learn basic principles of scientific writing that they can put into practice immediately such as selecting high impact words, building effective sentences and paragraphs, and structuring individual sections of a scientific manuscript. The course, which centers on the concept of writing with clarity and brevity, includes exercises to build skills.

GS-GS-5106
Intellectual Property
So you now have a great discovery or idea, how can you protect and market it? In this course we will learn about intellectual property law and technology transfer. We will cover different types of intellectual property, such as patents, trademarks, copyrights, etc., with an emphasis on genetic and biotechnology patents, both in the USA and internationally. We will also discuss copyrights: their nature, acquisition, and how to avoid infringing them, with an emphasis in instructional activity and educational settings.

GS-GS-5107
Leadership Skills
This course provides students with knowledge regarding the importance of leadership skills in their training and future career development. While leadership skills are essential components in career development, it is appreciated that leadership skills can't be taught and imparted upon students in a short didactic lecture-based setting. Therefore, the objective of this course is to introduce students to the basic concepts of leadership skills.

GS-GS-5112
Powerful Presentations
This course develops scientific communication skills to effectively convey your ideas to both experts and non-experts. Students work with a faculty mentor and small peer groups to develop, week-by-week, a short talk describing their thesis project. Topics covered include the fundamentals of effective talk design, how to construct potent slides, how deliver information effectively, and giving & receiving feedback.

GS-GS-5113
Designing & Managing Successful Scientific Projects
The course discusses how to develop and refine research ideas and what it means to make an original scientific contribution. Students will also be exposed to and practice using effective tools and approaches for managing and developing their thesis projects.

GS-GS-5202
Commercialization of Biomedical Technologies
This course covers the pathways for commercializing therapeutics, medical devices, and software technologies. Students will learn how to form, lead, and fund a start-up company with instruction from subject matter experts who have done it.

GS-GS-6205
Fundamentals of Epidemiology
This course introduces the basic principles and methods of epidemiology, with an emphasis on critical thinking, analytic skills, and application to clinical practice and research. Topics include outcome measures, methods of adjustment, surveillance, quantitative study designs, and sources of data. The course is designed for professionals intending to engage in, collaborate in, or interpret the results of epidemiological research as a substantial component of their career.
**This course is cross-listed as GCFEP 62000 in the School of Health Professions*

GS-GS-6400
Foundations B: Biostatistics
This course introduces biostatistical principles and technology most likely to be useful to laboratory scientists interested in basic and translational research. Topics include ANOVA, linear regression, contingency table analysis, logistic regression, survival analysis, and nonparametric statistics. The course also introduces basic experimental design principles and designs for clinical trials. The R software environment will be introduced and used for statistical analysis of real-life problem sets.

GS-GS-6600
Foundations A: Molecules to Systems
This course provides students with foundational and comprehensive knowledge in several critical areas of biology. Lectures are divided into nine modules that cover essential aspects of biology. Lectures begin with a description of macromolecules, and then incrementally expand into more complex mechanisms, and finally into the presentation of systems. The diversified format includes a series of lectures, discussion sessions, and TA sessions in which “active learning” techniques and “backwards design” are implemented to promote both knowledge and skill development for learners.

Biomedical Education (GS-BE)

GS-BE-5100
Graduate Teaching Practicum
The Graduate Teaching Practicum course is designed to provide students with a directed teaching experience. Graduate students enrolled in this course will obtain practical teaching experience by serving as Teaching Assistants (TAs) in Graduate School courses. Students must identify a TA position and obtain approvals from Course Director, Advisor and Program Director prior to enrollment.

GS-BE-6301
Fundamental Teaching Skills
This course provides an overview of methods used by teachers to enhance student learning. Topics include course and syllabus design, creating learning objectives, course planning, active learning, assessment, education technologies, and more.
Prerequisite: Admission to Candidacy

GS-BE-6302
Technology in Teaching
This course covers the selection of current academic technologies and provides learners with hands-on experience in designing active learning lessons that are enhanced through the integration of technology in both hybrid and face-to-face learning environments.
Prerequisite: GS-BE-6301

GS-BE-6303
The Science of Teaching & Learning
This course introduces learning theories, the basics of educational research, and provides ample opportunity to hone teaching and presentation skills.
Prerequisite: GS-BE-6302

Cancer & Cell Biology (GS-CC)

GS-CC-5000
Special Topics
Scholarly study directed by a faculty member. Special topics allows a faculty member to develop individualized courses for students. Special topics cannot be used to satisfy the 30 hr. course requirement.

GS-CC-5010
Readings
Faculty directed literature projects that survey a specialized topic of interest.

GS-CC-5020
Internship in Cancer & Cell Biology
This course is designed to supplement classroom coursework and lab-based research with practical application in a professional setting, including reflection on the challenges and value of applying knowledge. Students must undertake a work internship and write a summative reflection report under the supervision of the course director.

GS-CC-5030
Research Rotation
Faculty mentored research for students who have not yet selected a faculty advisor.

GS-CC-5040
Special Projects
Faculty mentored research for students that have selected their thesis advisor but not been admitted to candidacy.

GS-CC-5050
Dissertation
Thesis research directed by a faculty mentor and advisory committee. Open only to candidates for the Ph.D. or M.S. degree.

GS-CC-5100
Student Research Seminar
The objective of the course is for students within the Graduate Program to have an opportunity to present their ongoing research to a diverse group of colleagues, and to receive feedback from these colleagues on the quality of their presentation and research.

GS-CC-5101
Reading & Evaluating Scientific Literature
This course assists students in developing an understanding of scientific research and foster skills in reading and evaluating the scientific and medical literature. Discussion include the philosophies of scientific inquiry, the scientific methods/approaches, the factors and aspects that contribute to exemplary scientific publications.

GS-CC-5301
NRSA Grant Writing & Project Development 1
In this course, students learn to discuss the basic principles of grant proposal organization with an emphasis on the formulation of specific aims, how to develop a NRSA grant proposal using outlining, and how to present an elevator pitch and chalk talk of the proposal, while enhancing their collaboration and oral and written communication skills.

GS-CC-5302
NRSA Grant Writing & Development 2
In this course, students learn to refine scientific writing skills used in developing a NRSA grant proposal, the basic principles of oral presentations; and to orally defend a grant proposal. Students will get practical experience in scientific writing of a grant proposal and oral defense of the proposal.
Prerequisite: GS-CC-5301

GS-CC-6101
Cancer
This is a short course on cancer biology designed for those with a limited background in cancer biology. We aim to provide an introductory overview of major concepts and biological processes, emphasizing signaling pathways and molecular mechanism. Topics include historical and current concepts of oncogenes and tumor suppressors, tumor microenvironment, metastasis, metabolism and model systems.

GS-CC-6103
Biology of Aging
This course familiarizes students with the biology of aging, including mechanisms, models, clinical aspects, and the development of novel treatments, and the concepts of gerontobiology and geroscience.

GS-CC-6201
Translational Cancer Biology
This course integrates the basic science and translational aspects of cancer research along with clinical applications, thus advancing the student's understanding of current research and translational/clinical correlations in a selection of cancers.
** This course is cross-listed as MECLB 550 in the School of Medicine*

GS-CC-6202
Explorative Data Analysis
Explorative Data Analysis will teach concepts of statistical learning and of data integration in database systems that together will enable students to explore and learn from large and complex datasets to generate new and unique biological insights. The approach to teaching will emphasize methods of statistical learning and their conceptual underpinnings rather than their mathematical properties, and will use a hands-on approach to progressive 'omics'-data integration and mining by using community-based resources for data analysis rather than on writing codes

GS-CC-6203
Integrated Microscopy
The course is composed of a set of lectures that cover basic and advanced forms of light and electron microscopy, and an accompanying set of practical labs where students receive hands-on training on all the available instruments. The main topics addressed in the class are: basic optics, light- and fluorescence-based microscopy (i.e., brightfield, DIC, phase contrast, deconvolution, confocal, live cell imaging), fluorescence-based molecular tools (i.e., FRET, FRAP, fluorescent proteins), transmission electron microscopy, super-resolution microscopy (i.e., SIM, STORM), and specialized automated high throughput microscopy and image analysis.

GS-CC-6204
Regulation of Energy Homeostasis
Regulation of Energy Homeostasis addresses the control of metabolism in health and disease, and how energy balance is signaled among organs. Emphasis will be placed on defining regulatory mechanisms and pathways, with particular attention to abnormalities occurring with disease. The approach will be inter-disciplinary, including metabolic, biochemical, genetic and cellular aspects.
**This course is also listed as MECLB 570 in the School of Medicine*

GS-CC-6205
Translational Breast Cancer Research
This course provides an introduction into current issues in translational breast cancer research. The course encompasses a series of lectures on problems in clinical breast cancer diagnosis and treatment, breast development, and evolution of breast cancer, and approaches to translational breast cancer research. The purpose of the course is to provide a broad understanding of clinical issues and problems in breast cancer, familiarize students with breast cancer from the clinician's standpoint, and with research areas of active development in the field.

GS-CC-6206
Cell Death in Development and Disease
This course will discuss the most updated molecular mechanisms of different forms of cell deaths (apoptosis, necrosis, and autophagy) identified in invertebrate model organisms and in mammals, and the functions and regulation of cell death in human diseases. It will also cover the history, methods, and logic of cell death studies in model organisms.

GS-CC-6207
Ethics & Regulatory Preparation for Research with Animal Models
This course combines lecture-discussion co-learning as well as hands-on sessions to instruct trainees on the regulatory and oversight requirements, guidelines for developing and reporting results, and sampling and delivery procedures employed when performing research involving animal models.

GS-CC-6208
Cellular Signaling
Cellular signaling covers major cellular signaling pathways, actions of intracellular kinases and nuclear receptors, and strategies for regulating cell signaling. The pathways covered include those regulated by GPCR, receptor tyrosine kinases, TGFβ, Notch, Hedgehog, WNT, Hippo and nuclear receptors. In addition, signaling pathways regulated by small molecules including calcium, phospholipids, cAMP, cGMP, and AMP are discussed.

GS-CC-6210
Tumor, Technology, Therapy
"Limitless replicative potential" is the key cancer hallmark that is widely recognized including by non-scientists. Furthermore, de-regulated replicative controls often create genomic instability, which accelerates the evolution within cancer cells to reach a more aggressive state. This course will focus on the use of molecular biology and new advances in bioinformatics to define the mechanisms driving these events, and how basic science findings have guided the development of life-saving drugs.

GS-CC-6211
Gene Regulation
This course covers the mechanisms of regulated gene expression with a focus on eukaryotes. The course begins with RNA polymerase and transcriptional regulation through transcription factors, enhancers/repressors, co-transcriptional regulation, and the effects of chromatin structure and histone modification. The details of pre-mRNA processing are covered including the major and minor spliceosomes, poly-adenylation, alternative splicing, and RNA editing. Mechanisms of regulation by noncoding RNAs including miRNAs, siRNAs, piRNAs and lncRNAs are also considered. Mechanisms of regulation of translation and protein degradation complete the discussion.

GS-CC-6302
Molecular Carcinogenesis
The course explores the fundamental concepts and experiments in tumor biology, cancer virology and oncogenes and growth control. This course provides a broad based introduction to students who have an interest in modern cancer research. Faculty from four departments (Cell Biology, Molecular Virology, Pharmacology and Biochemistry) serve as instructors.

GS-CC-6303
Reproductive Biology
Reproductive Biology covers mammalian reproductive processes at all levels of biological organization (anatomical, physiological, cellular, biochemical and molecular). The course is taught with a comparative approach analyzing findings in different animal model systems and clinical studies to ensure that clinical issues affecting reproductive success are presented, and to also demonstrate how basic science is moving toward understanding the causes and treating reproductive failure and diseases.

GS-CC-6304
Biology & Mechanisms of Age-Related Disease
This course provides students and post-docs with the up-to-date information and current understanding of the aging process and age-related human disorders. The course covers molecular aspects of aging research, models and theories of aging, and clinical perspectives of aging processes. This advanced graduate elective course is offered for trainees who will specialize in or have a strong background in the interrelated areas of development, aging and age-related diseases.

GS-CC-6401
Technologies for Cancer Drug Discovery & Development
The course covers a variety of disciplines and topics important to cancer drug discovery and development. The course starts by covering pharmacology and basic cancer biology, then will transition to introductions of assay design, lead compound identification, medicinal chemistry and pharmaceutics. Finally, preclinical animal models and clinical assessments are presented.

Chemical, Physical, & Structural Biology (GS-CP)

GS-CP-5000
Special Topics
Scholarly study directed by a faculty member. Special topics allows a faculty member to develop individualized courses for students. Special topics cannot be used to satisfy the 30 hr. course requirement.

GS-CP-5010
Readings
Faculty directed literature projects that survey a specialized topic of interest.

GS-CP-5020
Internship in Chemical, Physical & Structural Biology
This course is designed to supplement classroom coursework and lab-based research with practical application in a professional setting, including reflection on the challenges and value of applying knowledge. Students must undertake a work internship and write a summative reflection report under the supervision of the course director.

GS-CP-5030
Research Rotation
Faculty mentored research for students who have not yet selected a faculty advisor.

GS-CP-5040
Special Projects
Faculty mentored research for students that have selected their thesis advisor but not been admitted to candidacy.

GS-CP-5050
Dissertation
Thesis research directed by a faculty mentor and advisory committee. Open only to candidates for the Ph.D. or M.S. degree.

GS-CP-5100
Student Research Seminar
The Graduate Student Seminar Series gives students the opportunity to present their research formally to an audience of their peers. Students in years 2 through 5 will give different presentations designed to prepare them for different kinds of scientific speaking.

GS-CP-5101
Scientific Thinking 1: Research Principles & Practices
This is the first in a series of 4 courses that aim to help first year graduate students develop the critical thinking, speaking and writing skills that are necessary for their professional success in graduate school and beyond. In this term, students set short-term professional goals around courses and laboratory rotations and gain strategies to improve their skills in technical writing and critical evaluation of the literature. Learning is achieved through group-based problem solving.

GS-CP-6202
Scientific Thinking 2: Critical Literature Analysis
The goals of this class are to develop critical reading skills for evaluating the scientific literature and to develop oral presentation skills. For a set of assigned papers, the student will learn to identify the gap in knowledge and the hypothesis that was tested, and analyze the experimental outcomes in relation to the hypothesis. They will also develop reasonable future directions in the form of a new set of hypotheses generated by the results in the paper.Term: 2
Prerequisite: GS-CP-5101

GS-CP-6205
Chemical Biology
Chemical Biology is a scientific discipline spanning the fields of chemistry, biology, and physics. It involves the application of chemical techniques, tools, and analyses, and often compounds produced through synthetic chemistry, to the study and manipulation of biological systems. The course teaches topics including an introduction to chemical biology, bio-orthogonal ligand reactions, small molecule inhibitors for protein-protein interactions and epigenetics, chemoproteomics, sensors for living cells, and state-of-the-art imaging techniques. The course content emphasizes applications of chemical tools in solving biological and biomedical problems.

GS-CP-6206
Drug Discovery: From Bench to Bedside
The objective of this course is to provide an overview of the making of a small-molecule drug. The topics include the identification of a drug target, bioassay development, structural biology, rational drug design and development, intellectual property protection as well as FDA regulations on new drug clinical trials.

GS-CP-6207
Electron Cryomicroscopy
This course discusses in-depth theoretical and practical techniques in structural biophysics with a particular emphasis on electron imaging and crystallography. The topics include cryo-specimen preparative techniques, electron microscope optics, image contrast theory, specimen radiation damage, single particle image reconstruction, tomographic reconstruction, density based modeling, 3-D visualization, biological knowledge discovery from cryo-electron imaging.

GS-CP-6208
Pharmacology Concepts in Drug Discovery & Development
Topics include an introduction to general pharmacology, pharmacokinetics and pharmacodynamics, and an overview of therapeutics in three disease areas, including infectious diseases, cancer, and central nervous system diseases. The course content emphasizes understanding the mechanisms of therapeutics instead of memorizing drug names and serves as an introduction for students who are interested in translational research.

GS-CP-6209
RNA-Protein Complexes
This course covers the molecular interactions that comprise RNA-protein complexes as well as the detailed mechanisms by which these interactions enable precise enzymatic and physiological functions. This course also takes an in-depth look at the general concepts common to many RNA binding proteins and the methods used to study protein-RNA and RNA-RNA interactions.

GS-CP-6210
Mass Spectrometry Proteomics
This course provides a comprehensive introduction to mass spectrometry (MS)-based proteomics research, covering both theoretical principles and practical applications. Students explore the fundamentals of mass spectrometry, peptide liquid chromatography and ionization techniques, basic principles of mass analyzers, data acquisition strategies, considerations in identification and quantification of peptides, and core biological and biochemistry applications. The course focuses on common bottom-up MS approaches.

GS-CP-6301
Advanced X-ray Crystallography
X-ray crystallography is a powerful technique to determine atomic resolution structures from small, inorganic molecules to large, multi-subunit macromolecular assemblies. This course covers both theory and practical considerations starting with the theory of protein crystallization, crystal systems, and data collection/processing to finding a structure solution, model building, and structure refinement/validation. The course will prepare students with diverse scientific backgrounds to expand their research to protein crystallography as an analytical tool to probe the structure-function relationship of proteins and enzymes at the atomic level.

GS-CP-6304
Molecular Biophysics 1
This is the first course in a two-term sequence. It presents in lecture format a survey of the major techniques of molecular biophysics, and

the underlying physical principles and mathematics on which they are based.

GS-CP-6305
Molecular Biophysics 2
This is the second course in a two-term sequence. It presents in lecture format a survey of the major techniques of molecular biophysics, and the underlying physical principles and mathematics on which they are based.

GS-CP-6306
Scientific Thinking 3: Writing & Defending Proposals I
The goal of this term is to build up on the analytical and presentation skills students develop through critical reading of the literature in Term 2. Students will continue to use the concept of the framing funnel to identify an existing gap in knowledge, and formulate a hypothesis/model that makes specific predictions that can be critically tested experimentally. Each student will write an abstract of a research proposal that will be discussed and revised in response from feedback from students and faculty.
Prerequisite: GS-CP-6202

GS-CP-6307
Scientific Thinking 4: Writing & Defending Proposals II
The goal of this term is to build upon the activities of Term 3 that culminated in writing a proposal abstract based on a published paper. Students will do additional literature-based research to add both depth and breadth to each component of the abstract using the concept of the framing funnel, and develop one new specific aim building off of published results. By the end of the course, each student will have written a full research proposal, whose specific aims, outline and early drafts will be presented to the class in written and oral form. They will receive feedback from students and faculty in the process of finalizing the proposal. Each student will also present a final presentation on the full proposal in a format similar to that of the qualifying examination.
Prerequisite: GS-CP-6306

Clinical Scientist Training Program (GS-CT)

GS-CT-5010
Readings
Faculty directed literature projects that survey a specialized topic of interest.

GS-CT-5030
Research Rotation
Faculty mentored research for students who have not yet selected a faculty advisor.

GS-CT-5040
Special Projects
Faculty mentored research for students that have selected their thesis advisor but not been admitted to candidacy.

GS-CT-5050
Dissertation
Thesis research directed by a faculty mentor and advisory committee. Open only to candidates for the Ph.D. or M.S. degree.

GS-CT-5101
Responsible Conduct of Research for Clinical Investigators
The RCRCI course is designed for the early career scientist/clinical or translational investigator, and will provide students with a fundamental competency and appreciation for the core topics within the ethical dimensions of biomedical research. During this one-week course, students will receive lectures from faculty with expertise in each of these core topics, to be followed by small group case study discussions illustrating ethics topics from the preceding lecture.

GS-CT-6201
Clinical Investigation 1: Research Development
This course provides students with the skills to develop an important research question, formulate strong hypotheses and specific aims, and begin to draft the components of a career development grant proposal.

GS-CT-6205
Clinical Investigation 5: Grant Evaluation
This course provides students with an appreciation of the NIH study section review process and a completed career development award.
Prerequisites: GS-CT-6201 and GS-CT-6304

GS-CT-6300
Fundamentals of Clinical Investigation
The objective of this course is to train students to interpret the results of other clinical investigators and to use the knowledge for providing state-of-the-art care for their patients. The course includes three modules reflecting specific areas relevant to a clinical researcher. These modules are: principles of clinical research; statistical methods in clinical research; special topics.

GS-CT-6302
Clinical Investigation 2: Research Design
This course provides students with an understanding of the theory and practice of conducting scientifically rigorous clinical trials. Building on the work of the previous CICS I course and from knowledge gained from the Fundamentals in Clinical Investigation course, students will fully develop the hypothesis, specific aims, and experimental design of their projects.
Prerequisites: GS-CT-6201 and GS-CT-6300

GS-CT-6303
Clinical Investigation 3: Career Development
This course provides students with an understanding of the theory and practice of conducting bench-to-bedside translational research. Building on the work of the previous term, students will continue the development of a K-type grant proposal, focusing on the career development plan and mentor's letters.
Prerequisites: GS-CT-6201 and GS-CT-6302

GS-CT-6304
Clinical Investigation 4: Research Application
This course provides students with an understanding of the theory and practice of health services research. Building on the work of the previous term, students will continue the development of a K-type grant proposal.
Prerequisites: GS-CT-6201 and GS-CT-6303

Clinical Translational Research (GS-CR)

GS-CR-5100
Clinical Translational Research Seminars
Students attend four Bench-to-Bedside seminars and four additional one-hour translational research seminars, conferences or meetings that are relevant to clinical translational research or are of general educational value for the conduct of clinical translational research. The student is expected to submit a brief summary of the attended seminar or conference to the course directors.
Prerequisite: Admission to CTR-CAQ program

GS-CR-5101
Clinical Translational Research Experience 1
Students accompany their clinical translational research (CTR) mentor in the clinical environment where they will learn about the care for individuals with diseases relevant to their translational thesis research and gain knowledge on how clinical translational research, and in the general field of medicine, is conducted. Students will then work with their CTR mentor to develop a clinical translational capstone project.
Prerequisite: Admission to CTR-CAQ program

GS-CR-5102
Clinical Translational Research Experience 2
Students will work with their clinical translational research (CTR) mentor in the clinical research environment on their clinical translational capstone project, that they developed in CTRE1.
Prerequisite: 2 credits of GS-CR-5101

GS-CR-6200
Orientation to Clinical Translational Research
This course teaches introductory insight into the bioethical conduct and practical aspects of clinical research, including types and categories of clinical trials, different phases of translational research, and regulatory considerations of clinical and translational research. The course consists of interactive didactic lectures and homework assignments for all enrolled students. The objective is to provide a broad understanding of practical, regulatory and bioethical issues of clinical translational research and of the complex relationship between investigators, their designees, and research subjects.

GS-CR-6201
Practical Skills in Translational Research Workshops 1
The course workshops are designed to provide active learning opportunities for the students who will gain practical skills using “hands-on scenarios” guided by the components needed to translate bench-research to the bedside research. In addition, they will learn how to develop research programs that will address clinical questions related to human health and disease.
Prerequisite: Admission to CTR-CAQ program

GS-CR-6202
Practical Skills in Translational Research Workshops 2
This course is a continuation of the course Practical Skills in Translational Research Workshops 1. The workshops are designed to provide active learning opportunities for the students who will gain practical skills using “hands-on scenarios” guided by facilitators who are experts in the field. It covers the components needed to translate bench-research to the bedside research.
Prerequisite: GS-CR-6201

Development, Disease Models, & Therapeutics (GS-DD)

GS-DD-5000
Special Topics
Scholarly study directed by a faculty member. Special topics allows a faculty member to develop individualized courses for students. Special topics cannot be used to satisfy the 30 hr. course requirement.

GS-DD-5010
Readings
Faculty directed literature projects that survey a specialized topic of interest.

GS-DD-5020
Internship in Development, Disease Models & Therapeutics
This course is designed to supplement classroom coursework and lab-based research with practical application in a professional setting, including reflection on the challenges and value of applying knowledge. Students must undertake a work internship and write a summative reflection report under the supervision of the course director.

GS-DD-5030
Research Rotation
Faculty mentored research for students who have not yet selected a faculty advisor.

GS-DD-5040
Special Projects
Faculty mentored research for students that have selected their thesis advisor but not been admitted to candidacy.

GS-DD-5050
Dissertation
Thesis research directed by a faculty mentor and advisory committee. Open only to candidates for the Ph.D. or M.S. degree.

GS-DD-5100
Student Research Seminar
Students who have been admitted to candidacy will present a seminar yearly on the topic of their ongoing thesis research project with emphasis on the translational aspects of their research project. The purpose of this course is to provide a forum for students to improve their knowledge and skills in planning, preparing and effectively presenting their scientific research to an inter-disciplinary audience.

GS-DD-5101
Effectively Writing & Reviewing Proposals
This course will explain the requirements and expectations of the qualifying exam. The course is geared specially towards second year students who have successfully completed their first year coursework and several months' work in their chosen thesis lab. The course will cover the format of the written and oral exams, tips for structuring the aims and scope of the written proposal, and provide students with opportunity to develop and deliver their oral presentation for feedback from the group. The goal of the course is to help students begin thinking about their work independently and to present their research problem and experimental goals clearly. Ultimately, this course is intended to encourage independent NRSA or other fellowship applications from those students who qualify.

GS-DD-5110
DDMT Journal Club
This course is required of all first and second year students enrolled in the Development, Disease Models & Therapeutics Graduate Program. The course is conducted as a journal club to study current literature, to practice critical analysis of the literature and to refine presentation techniques. First year students present papers from the current literature, all students join in discussion of the paper presented.

GS-DD-6101
Epigenetics in Reproductive Biology & Early Development
This course covers the fundamental principles of epigenetics and its role in regulating male and female reproduction, and early embryonic development in both humans and mice.

GS-DD-6201
Development
The Development of a mature organism from a single cell is one of the most fascinating problems in biology. Understanding development can shed light on fundamental processes such as gene regulation and control of the cell cycle, and on translational problems such as the origins and progression of cancer and the possibility of tissue engineering and regeneration to treat human disease. This course is designed as an introduction to some of the concepts of modern developmental biology.

GS-DD-6203
Animal Models of Human Disease
This course is designed to expose students to methodologies employed in generating animal models for human diseases and in analyzing these models. The major emphasis is on mouse models, but other model organisms will be discussed as well.

GS-DD-6206
Pathophysiology & Mechanisms of Human Disease
This course delves into the development and management of human diseases and disorders. Each lecture zeroes in on either pediatric or adult disease, shedding light on organ physiology or cellular processes, pathogenesis, and standard and experimental therapeutic approaches.

GS-DD-6208
Evolutionary Conservation of Developmental Mechanisms
This course focuses on the similarities and differences of developmental mechanisms between vertebrates and invertebrates. These mechanisms will be explored through the evolution of developmental pathways, as well as how during evolution numerous molecular players are conserved and how they are deployed in various developmental processes in diverse organisms.

GS-DD-6210
Cardiovascular Diseases
This course provides a general overview of the main common cardiovascular diseases and their causes. Topics covered include atherosclerosis, hypertension, congenital heart disease, ischemic heart disease, cerebral stroke, cardiac arrhythmias, and the effects of aging on the cardiovascular system.

GS-DD-6211
Model Systems in Developmental Biology & Disease
This course introduces the classical experimental methods and animal models used to address fundamental questions in developmental biology. Examples are provided which highlight specifically how developmental principles have been tested by choosing the best suited model system. These examples will allow the students to grasp how these earlier investigations directly inform their own future injury into the cellular and molecular mechanisms of development and disease.

GS-DD-6214
Method & Logic in Development & Disease Pathophysiology
This course trains first year graduate students how to read and interpret the primary literature related to studying developmental biology and the pathophysiology of disease. Students learn to discern what conclusions can be drawn from experimental data without over-interpretation, and what constitutes a well-designed experiment with proper controls. They also learn about fundamental experimental principles that pervade biological sciences, such as selecting the right model system and performing experiments with rigor and reproducibility.

GS-DD-6301
Human Physiology 1
This course will provide students with the basic knowledge of organ systems and integrative physiology in humans upon which the pathophysiology of human diseases can later be expanded. Lectures are intended to educate

students about the current research being performed in each field and to elicit ideas about future research and human applications. Topics covered in this course, which is the first of two Human Physiology courses, include: cellular physiology, the nervous system, skeletal muscle, the cardiovascular system, and the respiratory system.

GS-DD-6302
Human Physiology 2
This course will provide students with the basic knowledge of organ systems and integrative physiology in humans upon which the pathophysiology of human diseases can later be expanded. Lectures are intended to educate students about the current research being performed in each field and to elicit ideas about future research and human applications. Topics covered in this course, which is the second of two Human Physiology courses include: the immune system, renal physiology, bone, the endocrine system, the reproductive system, the gastrointestinal system and liver.

GS-DD-6303
Neural Development
This advanced graduate course in developmental neurobiology provides students with a more detailed background of neural development that will serve as conceptual framework for future studies. It particularly focuses on molecular genetic studies that have helped us elucidate the mechanisms underlying the development of the nervous system. This course integrates knowledge about molecular patterning of the nervous system using a cross-species approach that also emphasizes evolutionary relationships. The role of genes and mechanisms that play a role in the selection of neuroblasts and neuronal differentiation, in the specification and function of glial cells, in growth cone guidance and synapse formation are covered in detail.

GS-DD-6304
Advanced Topics in Cardiac Pathophysiology & Disease
This course covers the fundamentals of cardiac development and cardiac function in both physiological and pathological conditions. The course will also discuss the cutting-edge research approaches used in cardiology research. Topics covered include cardiac cycle, cardiac contractility, neural, and non-neural control of the circulation, biomedical instrumentation, and physical analytical methods.

GS-DD-6305
Advanced Topics in Vascular Pathophysiology & Disease
This course emphasizes cardiovascular disease pathology with a focus on vascular disorders and atherosclerosis. Lectures will cover all components of the normal system, inherited forms of disease, and the pathogenesis of acquired types of disease. Topics include vascular diseases, lipid disorders, atherosclerosis, hemostasis and bleeding disorders, microcirculation disorders, stroke, hypertension, and peripheral artery disease. The course will also discuss the cutting-edge research approaches used in cardiovascular research.

GS-DD-6306
Topics in Stem Cell Biology
This course covers current paradigms in stem cell biology, including new concepts or mechanisms in the developmental biology of the given tissue, recent advances in regenerative medicine, or new methodologies that led to new discoveries. Topics discussed include tissue stem cells such as hematopoietic, neural, and intestinal stem cells, as well as stem cells of non-vertebrate animals.

Genetics & Genomics (GS-GG)

GS-GG-5000
Special Topics
Scholarly study directed by a faculty member. Special topics allows a faculty member to develop individualized courses for students. Special topics cannot be used to satisfy the 30 hr. course requirement.

GS-GG-5010
Readings
Faculty directed literature projects that survey a specialized topic of interest.

GS-GG-5020
Internship in Genetics & Genomics
This course is designed to supplement classroom coursework and lab-based research with practical application in a professional setting, including reflection on the challenges and value of applying knowledge. Students must undertake a work internship and write a summative reflection report under the supervision of the course director.

GS-GG-5030
Research Rotation
Faculty mentored research for students who have not yet selected a faculty advisor.

GS-GG-5040
Special Projects
Faculty mentored research for students that have selected their thesis advisor but not been admitted to candidacy.

GS-GG-5050
Dissertation
Thesis research directed by a faculty mentor and advisory committee. Open only to candidates for the Ph.D. or M.S. degree.

GS-GG-5100
Student Research Seminar
A seminar series in which students present their own research to an audience of students and faculty to develop their oral communication skills. The course is aimed to supply the students with the experience necessary to perform highly successful.

GS-GG-5105
Genetics & Genomics Journal Club
This course is required of all first and second year students enrolled in the graduate programs in Genetics & Genomics. The course is conducted as a journal club to study current literature, to practice critical analysis of the literature and to refine presentation techniques. First year students present papers from the current literature, all students join in discussion of the paper presented.

GS-GG-6102
Genetic Epidemiology & Population Genetics
This introductory level course in genetic epidemiology focuses on the design of studies to identify disease-gene associations. The lectures concentrate on the two most common study designs for genetic association studies: case-control studies and case-parent trios, and address disease-gene associations, gene-environment interactions, and maternal genetic effects. Students will learn about study design and data analysis through class lectures, independent readings, completion of problem sets and class discussions.
** This course is cross-listed as GCEPG 61000 in the School of Health Professions*

GS-GG-6202
Mammalian Genetics
This course describes the contribution of mammalian molecular genetics techniques to understanding the function of genes and the impact of genetic and epigenetic factors on human disease. The first half of the course focuses on historical aspects and advanced technologies used in mouse genetics, including somatic gene editing. The second half of the course explores topics such as the human genome project, primate genetics, epigenetics, comparative sequence analysis and examining the mammalian genome at single cell level.

GS-GG-6203
Gene and Cell Therapy
This course covers various approaches to somatic and germ cell gene therapy, with emphasis on vector systems and other methods for gene delivery and targeting; model systems for specific applications of gene therapy; and the status of current therapeutic strategies for various inherited and acquired disorders.

GS-GG-6204
Method & Logic in Genetics & Genomics
This course is intended to train first year graduate students how to read and interpret the primary literature. In particular, we will teach students to discern what conclusions can be drawn from experimental data without over-interpretation. Students will learn what constitutes a well-designed experiment with proper controls. In addition, students will learn the fundamental experimental principles that pervade biological science, such as complementation, assigning function and specificity.

GS-GG-6205
Single Cell Methods & Analysis
Single cell omics methodologies are intended to understand whole genome scale variations in individual cells. This course focuses on the methods, the analysis and interpretation of these types of data as well as the strengths and limits of single cell approaches.

GS-GG-6206
Data Mining
Data science is an interdisciplinary field that utilizes scientific methods, processes, and systems to extract knowledge or insights from data. This course will introduce machine learning and data visualization techniques to uncover hidden patterns in data. We will cover how to prepare data for machine learning, perform initial exploratory data analysis, find clusters, devise classification and regression models, and score them to evaluate their accuracy. Additionally, the course will explain the emergence of large foundation models, embeddings, and provide a light introduction to generative AI.

GS-GG-6207
Career Development in Medical Genetics
Diagnosis of genetic diseases is important for students to understand how to apply their scientific knowledge into the practice of medicine. By focusing on case studies of various types of human disease, this course focus on teaching students how to transfer the fundamental genetic knowledge and principles into the practices of human disease diagnosis.

GS-GG-6301
Bioinformatics and Genomic Analysis
This course provides a background in the theory and application of standard computational methods for molecular biology research. The topics to be discussed include basic computational methods for common genomic analyses. Basics for computational work will include introductions to unix tools, common languages, software packages, computer processing approaches and storage infrastructure requirements, using clouds, workflows and best practices for computational work. Genomic analysis topics include fundamentals of sequence alignment and the impact on variant calling, methods for single nucleotide and structural variant interpretation, and sequence comparison. Genomic data analysis topics cover analysis of bulk and single cell RNAseq, epigenetic data, ATACseq and Hi-C data. Finally, topics about interpreting genomic variation for genetic hypothesis interpretation, clinical application and association studies, leveraging population-based methods including the All of Us data, and using ClinGen processes for variant curation.

GS-GG-6302
Human Genetics
The goal of this course is help graduate students learn the fundamental principles of human genetics they will need to be effective contributors to the field of human genetics. By the end of the course, students will have an increased ability to comprehend the human genetics literature, conduct human genetics research, accurately interpret genetic data obtained from human subjects and communicate

these findings to other researchers and the general public.

GS-GG-6305
Model Systems Genetics
This course focuses on introducing genetic approaches offered by different model organisms for solving biological problems, understanding how these models can address problems related to human diseases, and learning technical terms and concepts unique to each system.

Immunology & Microbiology (GS-IY)

GS-IY-5000
Special Topics
Scholarly study directed by a faculty member. Special topics allows a faculty member to develop individualized courses for students. Special topics cannot be used to satisfy the 30 hr. course requirement.

GS-IY-5010
Readings
Faculty directed literature projects that survey a specialized topic of interest.

GS-IY-5020
Internship in Immunology & Microbiology
This course is designed to supplement classroom coursework and lab-based research with practical application in a professional setting, including reflection on the challenges and value of applying knowledge. Students must undertake a work internship and write a summative reflection report under the supervision of the course director.

GS-IY-5030
Research Rotation
Faculty mentored research for students who have not yet selected a faculty advisor.

GS-IY-5040
Special Projects
Faculty mentored research for students that have selected their thesis advisor but not been admitted to candidacy.

GS-IY-5050
Dissertation
Thesis research directed by a faculty mentor and advisory committee. Open only to candidates for the Ph.D. or M.S. degree.

GS-IY-5100
Student Research Seminar
Graduate students will attend and present in a weekly research seminar series with presentations by Immunology & Microbiology Graduate students to discuss new developments and findings in their thesis research and develop networks. Students having passed their Qualification Exam will present their laboratory research once per year. Student evaluators will provide student presenters with constructive feedback on their presentations.

GS-IY-5105
Seminars in Immunology & Microbiology Research
Graduate students will attend the combined seminar series supported by Immunology, Tropical Medicine, and Molecular Virology and Microbiology. Presentations will be by scientists from other institutions along with BCM and TMC faculty.

GS-IY-5110
Literature Review in Immunology & Microbiology
Immunology and Microbiology graduate students will critically evaluate and present current research articles in areas of immunology, vaccine and immune therapy, microbiology, virology, parasitology and microbiome research. First and second year graduate students will give oral presentations of research articles to an audience comprised of fellow graduate students, postdocs, faculty and other scientists. Presenting students will be evaluated and receive feedback from fellow attendees, including students and faculty.

GS-IY-6200
Principles of Immunology
In the field of biology, the immune system is unique in that it crosses all organ boundaries and affects a vast number of processes critical for organismal function and survival. This short course introduces the basic cellular and molecular mechanisms of immunity. These include: the innate immune system (molecular "danger" patterns); the acquired immune system (B and T cell receptor gene rearrangement and their effector functions); the cross-talk between innate and acquired immunity; an overview of the principles of immune tolerance exemplified by mechanisms of transplant rejection and cancer immunity; and a discussion of autoimmune diseases & immunotherapies.

GS-IY-6201
Cells, Tissues and Organs
The Cells, Tissues and Organs course focuses on analysis of structure/function relationships in tissues and organs. This will include correlating tissue histology with organ physiology. Interactive lectures and discussions occur simultaneously with direct observation of human and some animal model tissues by the students through multi-head microscopes with a pathologist. Students participate in weekly essays and presentations.

GS-IY-6202
The Microbiome
This course will facilitate deeper understanding a host-associated community of microbes, termed the 'microbiome'. Through examination of a series of landmark and cutting edge papers, students will learn what constitutes a microbiome both in form and functions it provides to the host, plus the many molecular ways that it can influence health and progression of a wide range of diseases.

GS-IY-6204
Vaccinology
This course facilitates a deeper understanding of translational vaccinology linking the bench to the bedside (or shot in the arm), spanning the scope of pre-clinical vaccine design, phase 1,2,3 clinical vaccine trials, to post-clinical marketing and vaccine safety.

GS-IY-6205
Microbiome Methodology & Data Analysis
This course covers the core methodology used in the design and analysis of host-associated microbial communities, termed the 'microbiome', in health and disease. Students learn about the key factors in study design and methods used to characterize and quantitatively analyze microbiome sequencing datasets. Each session includes a hands-on practicum for data processing and analysis using publicly available tools. This class is intended to provide the basic methodological know-how to be able to integrate microbiome studies into any research program.

GS-IY-6206
Bacterial Pathogenesis
Bacterial Pathogenesis will focus on the fundamental and clinical aspects of mechanisms and consequences of bacterial pathogenesis. This course will provide students with the knowledge to understand how bacteria cause disease, insights into research approaches used to answer questions on bacterial pathogenesis, and a forum for in depth discussion of selected papers.

GS-IY-6301
Immunology
This is a series of lectures discussing concepts and experimental strategies of basic immunology and integrating these concepts into the fields of cancer, transplantation, allergy and autoimmunity. Taken together, the topics covered in this course provide students with a solid grounding in the intricacies and nomenclature of the immune system, a system that affects every aspect of physiology.

GS-IY-6305
Experimental Immunology & Microbiology
This course utilizes the primary literature to teach students how important challenges in immunology and microbiology are addressed experimentally. This is accomplished through dissection of individual published experiments employing a variety of technologies into multiple experimental elements (e.g., hypothesis, rationale, design, rigor, and data interpretation). Students additionally leverage this knowledge to formulate hypothesis-driven rigorous experimental designs and to describe expected results and potential pitfalls. Course directors and faculty facilitators select different immunology and microbiology topics and

highlighted technologies for each session. The course is presented entirely through student-centered and team-based learning approaches.

GS-IY-6401
Concepts in Host Immune System-Microbiome Interactions
This course provides an integrated understanding of host immune system-microbe interactions, including how they are established, maintained in health, and altered in disease states. Students will develop conceptual understandings of the host immune system and several classes of microbial pathogens and commensals; compare and contrast primary components and functions that drive host-microbial interactions from perspectives of both host and microbe; synthesize these perspectives; and extrapolate new ideas to explore real-world and hypothetical scientific problems.

GS-IY-6403
Effective Grant Writing
An ability to conceive significant and innovative research questions and to communicate them clearly is essential to achieve grant funding. This course is designed to introduce 1st or 2nd year graduate students to the fundamentals of successful grant writing including grant organization, strategy, and the review process using NIH as the model funding agency. Students will learn to strategically design at least two specific aims and to expand one of those aims into a fully developed research strategy section. During the course, students will present their aims and rationale several times with written and oral feedback from peers and faculty. This course is intended to develop skills in critical thinking, written presentation of complex scientific information, as well as preparing students for their qualifying exam, and encouraging independent NRSA or other fellowship applications.

Neuroscience (GS-NE)

GS-NE-5000
Special Topics
Scholarly study directed by a faculty member. Special topics allows a faculty member to develop individualized courses for students. Special topics cannot be used to satisfy the 30 hr. course requirement.

GS-NE-5010
Readings
Faculty directed literature projects that survey a specialized topic of interest.

GS-NE-5020
Internship in Neuroscience
This course is designed to supplement classroom coursework and lab-based research with practical application in a professional setting, including reflection on the challenges and value of applying knowledge. Students must undertake a work internship and write a summative reflection report under the supervision of the course director.

GS-NE-5030
Research Rotation
Faculty mentored research for students who have not yet selected a faculty advisor.

GS-NE-5040
Special Projects
Faculty mentored research for students that have selected their thesis advisor but not been admitted to candidacy.

GS-NE-5050
Dissertation
Thesis research directed by a faculty mentor and advisory committee. Open only to candidates for the Ph.D. or M.S. degree.

GS-NE-5101
Preparing for Your Neuroscience Qualifying Exam
This course will explain the requirements and expectations of the qualifying exam in Neuroscience. The course is geared specifically towards second year students who have successfully completed their first year coursework and several months' work in their chosen thesis lab. The course will cover the format of the written and oral exams, tips for structuring the aims and scope of the written proposal, and provide students with opportunity to develop and deliver their oral presentation for feedback from the group. The goal of the course is to help students begin thinking about their work independently and to present their research problem and experimental goals clearly.

GS-NE-5111
Neuroscience Lab 1
Students will be introduced to basic approaches of molecular and cellular neuroscience including learning how to model biological systems and how to perform basic laboratory techniques. Primary focus will be on understanding how to break complex neuronal systems down to enable useful computational analyses as well as the importance of design and controls in different experimental approaches. Students will be exposed to a combination of problem solving, practical demonstrations, and discussions of pluses and minuses for different approaches.

GS-NE-5112
Neuroscience Lab 2
This course extends the practical laboratory demonstrations begun in GS-NE-449 with hands-on demonstrations in systems and computational neuroscience. Methods to be covered include classical and modern neuro-anatomical techniques, in vivo pharmaco- and opto-genetics, model systems behavioral assays, fMRI, and computational modeling among others. One hour lecture and 3 hour laboratory demonstration per week.

GS-NE-5200
Seminar Journal Club in Neuroscience
The course is conducted as a journal club to study the scientific literature, to practice critical analysis of the literature, and to develop and refine presentation skills. This course is coordinated with the Department of Neuroscience seminar series such that second-year students present papers from the laboratory of the upcoming seminar speaker. All students join in discussion of the paper and evaluation of the journal club presentation.

GS-NE-6100
Principles of Neuroscience
This is an introductory course covering fundamental aspects of modern neuroscience. The lecture series begins with a discussion of neural development, and the resulting organization of the mammalian nervous system. The series then progresses into the molecular and structural specializations that allow neurons to process and transmit information. The course next explores how neurons contribute higher brain functions such as learning and memory and what happens in neurological disorders. The course will close on an examination the tools and techniques used to explore the nervous system and nervous system evolution that helps us relate model systems to human health and disease.

GS-NE-6101
Core Concepts in Computational Neuroscience
How do brains compute? This course covers the basic concepts underlying neuronal computation, from individual neurons up to networks of neurons in circuits. The focus will be on achieving a computational level understanding: how populations of neurons compute tasks critical for the organism's survival from sensory input. Students will also be exposed to key ideas from the field of Deep Machine Learning wherein artificial neural networks are employed to solve difficult real-world tasks.
Prerequisites: GS-NE-6301 (GS-NE-6302 can be taken concurrently)

GS-NE-6201
Analyses of Neuronal Function
This course will cover the basic concepts of synaptic biology. The topics include the organization of the synapses, neurotransmitter release, neurotransmitter receptors, synaptic plasticity in learning and memory, synaptic organization of microcircuits, and synaptic dysfunction in diseases. Students will learn synaptic biochemistry, cell biology, and physiology and how to study synapses.

GS-NE-6202
Anatomy of the Nervous System
The course will cover the basic concepts in neuroanatomy in a combined lecture, demonstration, and hands-on lab format. The emphasis will be on the structural organization of the nervous system. A large part of the course will consist of lectures that cover a structure or region of the brain augmented by simultaneous hands-on dissection of fixed sheep brain tissue, histological photographs, and representative MRIs. The students will be divided into small teams and will dissect a sheep brain along with the instructor. It is expected that the teams will interact with the instructors as the lecture/demonstration progresses. Additional lectures and demonstrations will be used to compare and contrast mammalian brains with other species' brains commonly used in neuroscience research.

GS-NE-6204
Neurobiology of Disease
This course will cover important and scientifically tractable disorders of nervous system function. The course will expose the students to the incidence, clinical manifestations, pathophysiology and current scientific models of the causes and mechanisms of some of the most common disorders of brain and nervous system function and development throughout the lifespan.

GS-NE-6206
Genetics: Principles, Applications & Tools for Neuroscience
This course is intended to teach neuroscience students how to tackle neurobiological problems using genetic strategies and tools. Students will be exposed to the basic concepts in genetics and

will be taught the advantages and approaches used in invertebrate model organisms, C. elegans and D. melanogaster, focusing on different genetic, cell biological and neurobiological tools available in those organisms .

GS-NE-6207
Electrophysiology of Neurons
This class covers the intrinsic electrophysiological properties of neurons, including the specialized ion channels and other structural features that enable them to precisely integrate and propagate electrical signals, and the analytical and experimental techniques neuroscientists can use to study electrical potentials and how they vary in time and space across the cell membrane.

GS-NE-6208
Concepts of Learning & Memory
This course introduces graduate students, researchers, and other interested persons to the field of modern neuroscience research of learning and memory. The course covers behavioral, systems, cellular, and molecular studies of learning and memory in humans, rodents and simple organisms.

GS-NE-6301
Neural Systems 1
Neural Systems I course covers the mechanisms involved in processing sensory information by the brain. The course will cover the major sensory systems from organizational principles to the transformation of information. This course will cover the key topics in the processing of sensory information by the brain. The course will also introduce students to in depth analysis of important papers in systems neuroscience to better assist their development of critical reading skills. This course will prepare students for Neural Systems 2 which will cover how sensory inputs are transformed into motor actions by the brain. Following completion of this course students will understand the locations, functional organization, and functional significance of the main sensory processing streams in the central nervous system.

GS-NE-6302
Neural Systems 2
Neural Systems 2 course covers the mechanisms involved in transforming sensory inputs into motor action and higher brain functions. The course will cover the spinal, cortical, limbic and cerebellar systems involved in motor planning and execution, behavioral control, and learning and memory. This course will cover the key topics in translation of sensory inputs into patterns of motor behavior as well as brain circuits involved in higher cognitive functions. The course will also introduce students to in depth analysis of important papers in systems neuroscience to better assist their development of critical reading skills. Following completion of this course student will understand the locations, functional organization, and functional significance of the main motor pathways as well as key findings linking brain function to complex cognitive behaviors.
Prerequisites: GS-NE-6301

GS-NE-6303
Electrical Signaling in the Brain
This course covers basics and practical concepts of electrical signaling from the chemical and physical principles to understanding the implications of electrophysiological measurements and how to computationally model neurons. Students will learn through a mixture of lectures, problem solving and published literature analyses.

GS-NE-6304
Brain Cell Biology & Development
This course covers the basic molecular and cellular organization of the Nervous system. The first 2/3 of the course provides an overview and focal lectures on topics of particular importance to understanding molecular and cellular organization of neurons. The last third of the course covers aspects of neural development that integrates principles learned in the first 2/3 of the course.

GS-NE-6402
Cellular Neurophysiology & Visual Neuroscience
The course covers the basic neurophysiology of neurons & synapses, as well as the physiology of the visual system.

Quantitative and Computational Biosciences (GS-QC)

GS-QC-5000
Special Topics
Scholarly study directed by a faculty member. Special topics allows a faculty member to develop individualized courses for students. Special topics cannot be used to satisfy the 30 hr. course requirement.

GS-QC-5010
Readings
Faculty directed literature projects that survey a specialized topic of interest.

GS-QC-5020
Internship in Quantitative & Computational Biosciences
This course is designed to supplement classroom coursework and lab-based research with practical application in a professional setting, including reflection on the challenges and value of applying knowledge. Students must undertake a work internship and write a summative reflection report under the supervision of the course director.

GS-QC-5030
Research Rotation
Faculty mentored research for students who have not yet selected a faculty advisor.

GS-QC-5040
Special Projects
Faculty mentored research for students that have selected their thesis advisor but not been admitted to candidacy.

GS-QC-5050
Dissertation
Thesis research directed by a faculty mentor and advisory committee. Open only to candidates for the Ph.D. or M.S. degree.

GS-QC-5100
Student Research Seminar
QCB graduate students will attend the course weekly where upper level student who have passed their qualifying exam will present their research. These research presentations will be presented to an audience of 1st year students and a faculty member to help develop their oral communication and research presentation skills. Following each student's presentation, constructive advice from faculty and students will be provided in a survey about improving oral and presentation skills and about producing effective presentation materials.

GS-QC-5105
Seminar in Quantitative Biosciences
This course introduces graduate students to the diversity of biological and clinical research problems that benefit from computational approaches.

GS-QC-5110
Advanced Topics in QCB
This course is designed for the QCB students to be exposed to the current research and to present on active research going on in quantitative and computational biosciences. The course is aimed to supply the students with the topics for their rotations and research projects.

GS-QC-6201
Applications to Biology of Computation
The course will offer a broad survey of different topics from a computational perspective: genomics, epigenomics, population genetics, transcriptomics, proteomics, structure-function, systems biology, networks, cellular imaging, phylogenomics, pattern discovery, drug design, medical informatics, the microbiome, the cancer genome and neurosystems. The objectives are to become familiar with basic computational challenges in these fields and with the current algorithmic solutions.

GS-QC-6202
Computational Project Design & Grant Writing
The course formalizes approaches for methodologic qualifying exam by introducing simulation studies and sensitivity analyses; the course also covers positive and negative controls in computational science projects; the course will provide instructions on the structure of NIH research grants. This course is designed to prepare QCB students for the qualifying exam.

GS-QC-6301
Practical Introduction to Scientific Programming in Python
In this course students will learn Python, one of the most widely used scripting languages in scientific computing. The course is primarily aimed at students with little or no programming background, but those with some programming experience in other languages wishing to learn Python are also welcome. The course covers basic programming concepts and data structures, and students will learn to write simple programs to improve their data processing productivity. We will also cover a number of open source scientific libraries available in Python (Biopython, SciPy, Matplotlib, etc.). Some basic familiarity with using a computer will be expected, and each student must have a laptop computer for use in class by the beginning of the term.

GS-QC-6302
Computer-Aided Discovery Methods
The objective of this course is to introduce students to the concepts, methods and tools relevant for computer-aided discovery using data collected using high-throughput technologies. The course will focus on the methods of integration of data, tools, and discovery processes and the methods of computational pattern discovery, hypothesis generation and testing. The students will master advanced applications of computing that enable new methods of discovery in a field of focus, which will initially be cancer biology. The course will not focus exclusively on technical, algorithmic or mathematical aspects nor will it focus on biology alone. Instead, the focus will be on genuine integration of the two fields.

GS-QC-6303
Advanced Computer Programming for Biosciences
This course covers data structures and software engineering concepts and techniques using Python, and applications to single cell processing, machine learning, and image analysis
Prerequisite: GS-QC-6301 or consent of course director.

GS-QC-6401
Quantitative & Computational Methods for Biosciences 1
This is the first in a series of two courses that introduces essential computational, statistical and mathematical concepts to students who are interested in computational biology. It is intended that each of the concepts will be taught in the context of the real biological problems. In this course, we will cover the probability theory, stochastic process, regression model, model regularization, and dimensionality reduction algorithms.

GS-QC-6402
Quantitative & Computational Methods for Biosciences 2
This is the second in a series of two courses that introduces essential computational, statistical and mathematical concepts to students who are interested in computational biology. In this course, we will focus on unsupervised learning, deep neural networks, methods in image analysis as well as genomic sequence analysis.

Master of Science in Biological Sciences (GS-BS)

GS-BS-4050
Thesis Research
Thesis research directed by a faculty mentor. Open only to candidates for the M.S. degree.
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4100
Student Research Seminar
A seminar series in which 2nd year students will present their own research to an audience of their peers to develop their oral presentation skills. Following the presentation, constructive advice from faculty and other students will be provided to improve presentation skills and to produce effective presentation materials. The course will prepare students to create and present successful presentations outside the college for future job applications, or professional presentations later in their careers.
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4101
Critical Reading & Literature Analysis 1
This course assists students in developing skills to approach and synthesize scientific research literature, providing valuable skills practice in critical reading and analysis. Discussion topics will include critical analysis fundamentals, philosophies of scientific inquiry, methods & approaches, and the factors and aspects that contribute to outstanding scientific publications.
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4102
Critical Reading & Literature Analysis 2
This course assists students in developing skills to practice reading & analysis skills for scientific research literature, providing practical application of presentation skills. Students will be responsible for critically reading the assigned literature, preparing presentations, and answering questions to demonstrate understanding and analysis of the selected literature.
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4103
Rigor & Reproducibility in Biomedical Research
This course covers the importance of rigor and reproducibility in biomedical research. The course familiarizes students with rigor and reproducibility concepts and informs students of the potential impact on basic research, clinical practices and human health when rigor and reproducibility approaches are not adhered to.
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4104
Laboratory Leadership & Management
This course introduces students to key skills needed for successful interaction in a productive & cooperative laboratory, as a successful researcher, coworker, and future laboratory leader.

GS-BS-4105
Advanced Technology Laboratory Skills Development
In this course, students directly experience what goes on in an Advanced Technology Core laboratory where they engage in a skill development activity. Each participating skill development activity consists of a combination of lectures and lab exposures. The content of the skill development activity focuses on the expertise of the Core and exposes the student to a particular state-of-the-art method providing theory and practical application with specific demonstration of the method(s) covered in lecture.
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4111
Ethics in the Conduct of Research 1
This course is the first of a three-part ethics symposium to provide students training in the responsible conduct of research. Sessions in part 1 will involve students in discussion and case study about data management, scientific misconduct, authorship, and rigor & reproducibility.
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4112
Ethics in the Conduct of Research 2
This course is the second of a three-part ethics symposium to provide students training in the responsible conduct of research. Sessions in part 2 will involve students in discussion and case study about issues surrounding ethical treatments of animals in research, research misconduct, and funding of scientific research.
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4113
Ethics in the Conduct of Research 3
This course is the third in a three-part ethics symposium to provide students training in the responsible conduct of research. Sessions in part 3 will involve students in discussion and case study about peer review, conflicts of interest, the scientist's role as a responsible member of society, collaborative research, mentor/mentee relationships, rigor & reproducibility, and issues surrounding ethical research involving human subjects.
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4201
Introduction to Biostatistics
This course offers students introductory topics in applied biostatistics with an emphasis on hands-on basic data analysis using an appropriate statistical package. The class focuses on the practical application of statistical methods to study design and analysis including ability to interpret results.
**This course is cross-listed as GS-HE-4206.*
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4300
Thesis Research Preparation
This course prepares students for their thesis project. Students receive an overview of the Advanced Technology Cores laboratories and are introduced to faculty that have an interest in training a MS student for a potential thesis project. Students will set up a meeting with potential mentors to discuss potential projects in the lab. PI's can go over a relevant paper from the lab and discuss the paper with the student and/or the student can attend a lab meeting.
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4301
Molecular Cell Biology
This course focuses on the understanding of basic cellular mechanisms that occur in all cells. The format includes a series of lectures, small group active-learning sessions where students work in groups to solve problem-based questions, and instructor-led lectures and review sessions that will promote both mastery of content and development of critical thinking skills necessary for a developing scientist.
**This course is cross-listed as GS-HE-4301.*
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4302
Principles of Genetics
This course provides students with foundational knowledge in areas of biotechnology and genetics and focuses on the understanding of current research methodologies and the fundamentals of heredity and molecular genetics. The format includes a series of lectures, small group, active-learning sessions where students work in groups to solve problem-based questions, and instructor-led review sessions that will promote both mastery of content and development of critical thinking skills necessary for a developing scientist.
**This course is cross-listed as GS-HE-4302.*
Prerequisite: Admission to the MS program in Biomedical Sciences

GS-BS-4501
Molecular Methods
This course covers basic methods in molecular biology. The methods cover nucleic acids manipulation and analysis as well as protein manipulation and analysis. The material also includes methods for making transgenic animals and viral methods of transient infection, and the use of stem cells and organoids.
Prerequisite: Admission to the MS program in Biomedical Sciences

Post-Baccalaureate Courses in Biomedical Sciences & Health Equity (GS-HE)

GS-HE-4201
Success Strategies for Healthcare Professionals
This course introduces students to the success and professional development knowledge and skills needed for a successful healthcare professions career. Topics include self-regulated adult learning, growth mindset and lifelong learning, the memory process, learning modalities, reflection and self-evaluation in learning, academic success skills, professional identify formation and career exploration, developing cultural praxis, interpersonal communication skills, and professional etiquette and professional boundaries.
Prerequisite: Admission to the Post-baccalaureate Certificate program in Biomedical Sciences & Health Equity.

GS-HE-4202
Wellbeing & Burnout Management for Healthcare Professionals This course focuses on the knowledge base and techniques used to alleviate and manage burnout, and enhance wellbeing.
** This course is cross-listed as MEPSY 567 in the School of Medicine.*
Prerequisite: Admission to the Post-baccalaureate Certificate program in Biomedical Sciences & Health Equity.

GS-HE-4203
Critical Thinking Skills for MCAT/GRE Prep
This course will provide essential supplemental skillsets needed to enhance preparation and performance on the MCAT and GRE. This course encompasses a series of lectures and group-based learning activities that focus on teaching students' specific skill sets that can help improve comprehension and retention of the test material. Students learn how to use personal learning style-specific techniques and study tools, effective study habits, and learning-style-specific group learning sessions to prepare for and take the MCAT and GRE.
Prerequisite: Admission to the Post-baccalaureate Certificate program in Biomedical Sciences & Health Equity.

GS-HE-4204
Introduction to Health Disparities
This course in health disparities is an introduction to the intersection of health inequities and health care. Topics include access to health care, health inequities, cultural competencies, cultural humility, community engagement, community based research.
** This course is cross-listed as MEPED 589 in the School of Medicine.*
Prerequisite: Admission to the Post-baccalaureate Certificate program in Biomedical Sciences & Health Equity.

GS-HE-4205
Health Advocacy & Service Learning
Health professionals have an important responsibility to serve as influential leaders in addressing the social determinants of health in order to improve the health of their patients and the community. This course is geared to inspire future health professionals to participate in civil society, service to the community, and active engagement on behalf of the public interest. Topics include building community collaborations, advocating for health via media, and developing a position statement.
Prerequisite: Admission to the Post-baccalaureate Certificate program in Biomedical Sciences & Health Equity.

GS-HE-4206
Introduction to Biostatistics
This course offers students introductory topics in applied biostatistics with an emphasis on hands-on basic data analysis using an appropriate statistical package. The class focuses on the practical application of statistical methods to study design and analysis including ability to interpret results.
** This course is cross-listed as GS-BS-4201*
Prerequisite: Admission to the Post-baccalaureate Certificate program in Biomedical Sciences & Health Equity.

GS-HE-4207
Introduction to Public Health Policy
This is an introduction to public health policy. Topics include health care literacy, health care finance, health policy analysis, development and implementation of policy.
Prerequisite: Admission to the Post-baccalaureate Certificate program in Biomedical Sciences & Health Equity.

GS-HE-4401
Fundamentals of Research Methods
This course introduces students to quantitative and qualitative methods for conducting meaningful inquiry and research. They will gain an overview of research intent and design, methodology and technique, format and presentation, and data management and analysis informed by commonly used statistical methods. Topics include introduction to research design, planning a research study, bio-statistical considerations, epidemiological considerations, survey research methods, and ethical issues of research.
Prerequisite: Admission to the Post-baccalaureate Certificate program in Biomedical Sciences & Health Equity.

GS-HE-4301
Molecular Cell Biology
This course focuses on the understanding of basic cellular mechanisms that occur in all cells. The format includes a series of lectures, small group active-learning sessions where students work in groups to solve problem-based questions, and instructor-led lectures and review sessions that will promote both mastery of content and development of critical thinking skills necessary for a developing scientist.
** This course is cross-listed as GS-BS-4301*
Prerequisite: Admission to the Post-baccalaureate Certificate program in Biomedical Sciences & Health Equity.

GS-HE-4302
Principles of Genetics
This course provides students with foundational knowledge in areas of biotechnology and genetics and focuses on the understanding of current research methodologies and the fundamentals of heredity and molecular genetics. The format includes a series of lectures, small group, active-learning sessions where students work in groups to solve problem-based questions, and instructor-led review sessions that will promote both mastery of content and development of critical thinking skills necessary for a developing scientist.
** This course is cross-listed as GS-BS-4302*
Prerequisite: Admission to the Post-baccalaureate Certificate program in Biomedical Sciences & Health Equity.

GS-HE-4601
Clinical Biochemistry
This course provides students with the foundations of clinical biochemistry in order to prepare them for their further studies. The course reviews basic organic chemistry pertinent to understanding metabolic pathways with emphasis on different aspects of clinical biochemistry, including structure and function of proteins, enzyme kinetics, and the metabolism of carbohydrates, lipids and amino acids. Special attention is given to the nutritional needs of humans.
** This course is cross-listed as HPBIO 63121 in the School of Health Professions.*
Prerequisite: Admission to the Post-baccalaureate Certificate program in Biomedical Sciences & Health Equity.

Certificate in Tropical Health & Biotechnology (GS-TM)

GS-TM-4201
Biotechnology Management & Operations
Students will be introduced to key principles and practices of a biotechnology operation. The course will include lectures on product discovery, project planning and budgeting, product development, pre-clinical data, regulatory systems, scale-up and clinical-grade manufacturing, and clinical testing.
Prerequisite: Admission to the Certificate program in Tropical Health & Biotechnology

GS-TM-4202
Preclinical Models in Biotechnology
Fundamentals of preclinical models used for vaccine development. The course emphasizes basic immunological principles applied to vaccine development, natural and experimental animal models for efficacy testing, and design and execution of GXP animal studies. Additionally, fundamentals of US and international regulations governing human therapeutic development are covered.
Prerequisite: Admission to the Certificate program in Tropical Health & Biotechnology

GS-TM-4203
Genetic Engineering & Biopharmaceutical Production
This course provides an overview of the principles, methods, and applications of recombinant DNA technology and genetic engineering techniques to discover and produce recombinant proteins that have biomedical significance. The subject has a particular emphasis on the development of vaccines.
Prerequisite: Admission to the Certificate program in Tropical Health & Biotechnology

GS-TM-4204
Advocacy & Policy: Tropical & Emerging Infectious Disease
This course introduces topics of advocacy and policy to establish a framework for tropical and emerging infectious diseases. Through discussion, case studies and team work, the course focuses on learning the skills for advocacy in hopes to lead towards changes in government programs and legislation.
Prerequisite: Admission to the Certificate program in Tropical Health & Biotechnology

GS-TM-4205
Applied Epidemiology: GIS & Health
This course provides a basis for spatial and environmental public health through applied learning of epidemiology, biostatistics, and geographic information systems (GIS). Didactic instruction will introduce principles of epidemiology and methodologies in spatial analyses, then it will explore these concepts in an applied setting using case-based and interactive learning.
Prerequisite: Admission to the Certificate program in Tropical Health & Biotechnology

GS-TM-4206
Diagnostics of Tropical & Emerging Infectious Diseases
This course introduces participants to the principal and practical application of current laboratory and point-of-care methods for the detection of tropical and emerging infectious diseases. Topics will include molecular methods such as nucleic acid-based technologies as well as immunology-based techniques.
Prerequisite: Admission to the Certificate program in Tropical Health & Biotechnology

GS-TM-4401
Tropical & Emerging Infectious Disease
The course provides a comprehensive overview of the major neglected tropical diseases (NTDs), HIV/AIDS, malaria, TB, and emerging infections that affect people who live in extreme poverty.
Prerequisite: Admission to the Certificate program in Tropical Health & Biotechnology

GS-TM-4402
Applied Epidemiology: Biostatistics & Public Health
This course provides a basis for public health in tropical medicine through applied learning of epidemiology and biostatistics. Didactic instruction will introduce principles of epidemiology and methodologies in biostatistical analyses, then it will explore these concepts in an applied setting using case-based and interactive learning.
Prerequisite: Admission to the Certificate program in Tropical Health & Biotechnology

GS-TM-4403
Vector Biology & Vector-Borne Diseases
The course provides students with a comprehensive overview of vector biology. Topics covered include transmission of human and animal pathogens by insect and tick vectors, vector-pathogen-mammalian host interactions, and transmission of dynamics of vector-borne pathogens, genetics, and control strategies.
Prerequisite: Admission to the Certificate program in Tropical Health & Biotechnology

Course Requirement Checklist
MS in Biomedical Sciences

Students Starting Academic Year: 2025-2026

Didactic Course Requirements (13 credits):				
	GS-BS-4201	Introduction to Biostatistics	2	
	GS-BS-4301	Molecular Cell Biology	3	
	GS-BS-4302	Principles of Genetics	3	
	GS-BS-4501	Molecular Methods	5	
Elective Didactic Course(s) (2 credits)**:**				
Non-Didactic Course Requirements (14 credits):				
	GS-BS-4100	Student Research Seminar	1	
	GS-BS-4101	Critical Thinking & Scientific Literature Analysis 1	1	
	GS-BS-4102	Critical Thinking & Scientific Literature Analysis 2	1	
	GS-BS-4103	Rigor & Reproducibility in Biomedical Research	1	
	GS-BS-4104	Laboratory Leadership & Management	1	
	GS-BS-4105	Advanced Technology Laboratory Skills Development	3	*(1 cr., take 3 times)*
	GS-BS-4300	Thesis Research Preparation	3	
	GS-GS-5105	Scientific Writing	1	
	GS-GS-5112	Powerful Presentations	1	
	GS-GS-5113	Designing & Managing Successful Scientific Projects	1	
Ethics in the Conduct of Research Courses (3 credits):				
	GS-BS-4111	Ethics in the Conduct of Research 1	1	
	GS-BS-4112	Ethics in the Conduct of Research 2	1	
	GS-BS-4113	Ethics in the Conduct of Research 3	1	
Research Hours (variable):				
	GS-BS-4050	Thesis Research	Var.	

Graduate Degree Plan
MS in Biomedical Sciences

Students Starting Academic Year: 2025-2026

General Degree Requirements:

- Completion of at least 90 term hours
- At least 12 of those term hours must be in Didactic courses
- Students must maintain satisfactory academic progress as detailed in the Student Handbook

Year One Requirements:

Term 1:	GS-BS-4101	Critical Reading & Scientific Literature Analysis 1	1	
	GS-BS-4111	Ethics in the Conduct of Research 1	1	
	GS-BS-4300	Thesis Research Preparation	1½ *(two-term course)*	
	GS-BS-4301	Molecular Cell Biology	3 (Didactic)	
	GS-BS-4501	Molecular Methods	2½ (Didactic) *(two-term course)*	
	GS-GS-5113	Designing & Managing Successful Scientific Projects	1	Total to Date
		Total:	9 (5)	9 (5)
Term 2:	GS-BS-4103	Rigor & Reproducibility	1	
	GS-BS-4112	Ethics in the Conduct of Research 2	1	
	GS-BS-4300	Thesis Research Preparation	1½ *(two-term course)*	
	GS-BS-4302	Principles of Genetics	3 (Didactic)	
	GS-BS-4501	Molecular Methods	2½ (Didactic) *(two-term course)*	Total to Date
		Total:	9 (5)	18 (10)

Elective Course Requirement:
Students will enroll in a 2-credit didactic elective, or two 1-credit electives, no earlier than the third term of their first year.

Advanced Laboratory Skills Requirement:
Students are required to enroll in at least 3 credits of GS-BS-4105 Advanced Technology Laboratory Skills beginning in their third term.

Term 3:	GS-BS-4113	Ethical Conduct of Research 3	1	
	GS-GS-5105	Scientific Writing	1	
	GS-BS-4201	Introduction to Biostatistics	2 (Didactic)	
	GS-BS-4050	Thesis Research	5	
		option: [Adv. Laboratory Skills/Elective Course]		Total to Date
		Total:	9 (2)	27 (12)
Term 4:	GS-BS-4102	Critical Reading & Scientific Literature Analysis 2	1	
	GS-GS-5112	Powerful Presentations	1	
	GS-BS-4050	Thesis Research	7	
		option: [Adv. Laboratory Skills/Elective Course]		Total to Date
		Total	9	36 (12)
Term 5:		Thesis Research/Laboratory Skills/Selective Course(s)	9	
		option: [Adv. Laboratory Skills/Elective Course]		Total to Date:
		Total:	9	45 (12)

Year Two Requirements:

Term 1:	GS-BS-4104	Laboratory Leadership & Management	1	
	GS-BS-4050	Thesis Research	8	
		option: [Adv. Laboratory Skills/Elective Course]		Total to Date
		Total:	9	54 (12)
Term 2:	GS-BS-4100	Student Research Seminar	1	
	GS-BS-4050	Thesis Research	8	
		option: [Adv. Laboratory Skills/Elective Course]		Total to Date
		Total:	9	63 (12)
Term 3:	GS-BS-4050	Thesis Research	9	
		option: [Adv. Laboratory Skills/Elective Course]		Total to Date
		Total:	9	72 (12)
Term 4:	GS-BS-4050	Thesis Research	9	
		option: [Adv. Laboratory Skills/Elective Course]		Total to Date
		Total:	9	81 (12)
Term 5:	GS-BS-4050	Thesis Research	9	
		option: [Adv. Laboratory Skills/Elective Course]		Total to Date
		Total:	9	90 (12)

MS in Biomedical Sciences program courses:

GS-BS-4050	Thesis Research	GS-BS-4105	Advanced Technology Laboratory Skills
GS-BS-4100	Student Research Seminar	GS-BS-4111	Ethics in the Conduct of Research 1
GS-BS-4101	Critical Reading & Scientific Literature Analysis 1	GS-BS-4112	Ethics in the Conduct of Research 2
		GS-BS-4113	Ethics in the Conduct of Research 3
GS-BS-4102	Critical Reading & Scientific Literature Analysis 2	GS-BS-4201	Introduction to Biostatistics
		GS-BS-4300	Thesis Research Preparation
GS-BS-4103	Rigor & Reproducibility in Biomedical Research	GS-BS-4301	Molecular Cell Biology
		GS-BS-4302	Principles of Genetics
GS-BS-4104	Laboratory Leadership & Management	GS-BS-4401	Molecular Methods

Course Requirement Checklist
PhD in Cancer & Cell Biology

Students Starting Academic Year: 2025-2026

Foundations Courses (10 credits):				
	GS-GS-6600	Foundations A: Molecules to Systems	6	
	GS-GS-6400	Foundations B: Biostatistics	4	
Program Core Courses (7 credits):				
	GS-CC-6208	Cellular Signaling	2	
	GS-CC-6211	Gene Regulation	2	
	GS-CC-6302	Molecular Carcinogenesis	3	
Didactic Elective Courses (at least 13 credits):				
Responsible Conduct of Research Courses (4 credits):				
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-GS-5103	Responsible Conduct of Research 3	1	
	GS-GS-5104	Responsible Conduct of Research 4	1	
Professional Development Courses (8 credits):				
	GS-CC-5101	Reading & Evaluating Scientific Literature	1	
	GS-CC-5301	NRSA Grant Writing & Project Development 1	3	
	GS-CC-5302	NRSA Grant Writing & Project Development 2	3	
	GS-GS-5105	Scientific Writing	1	
Seminar/Journal Literature Course:				
	GS-CC-5100	Student Research Seminar	1	
Required in terms 1-4 every year from matriculation through attainment of Permission-To-Write.				
Research Hours: In each term, students enroll in the number of credits [beyond other coursework] needed to be enrolled full-time (minimum 3)				
	GS-CC-5030	Research Rotation	Var.	
Taken each term when a mentor is not appointed (minimum 3 terms)				
	GS-CC-5040	Special Projects	Var.	
Taken each term after a mentor is appointed, and before candidacy is achieved.				
	GS-CC-5050	Dissertation	Var.	
Taken each term after a mentor is appointed, and after candidacy is achieved.				

Graduate Degree Plan
PhD in Cancer & Cell Biology

Students Starting Academic Year: 2025-2026

General Degree Requirements:

- Completion of at least 180 term hours
- At least 30 of those term hours must be in Didactic courses
- Completion of at least three terms of Research Rotation before appointing a major advisor
- Students must maintain satisfactory academic progress as detailed in the Student Handbook

Year One Requirements:

Term 1:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-CC-5101	Reading & Evaluating Scientific Literature	1	
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-CC-5100	Student Research Seminar	1	
		Research Rotation/Elective Courses	4	Total to Date
		Total:	12 (5)	12 (5)
Term 2:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-CC-5100	Student Research Seminar	1	
		Research Rotation/Elective Courses	6	Total to Date
		Total:	12 (5)	24 (10)
Term 3:	GS-CC-6208	Cellular Signaling	2 (Didactic)	
	GS-CC-6211	Gene Regulation	2 (Didactic)	
	GS-GS-5105	Scientific Writing	1	
	GS-CC-5100	Student Research Seminar	1	
		Research Rotation/Elective Courses	6	Total to Date
		Total:	12 (4)	36 (14)
Term 4:	GS-CC-6302	Molecular Carcinogenesis	3 (Didactic)	
	GS-CC-5301	NRSA Grant Writing & Project Development 1	3	
	GS-CC-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	5	Total to Date
		Total	12 (3)	48 (17)
Term 5:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	60 (17)

Year Two Requirements:

Term 1:	GS-CC-5302	NRSA Grant Writing & Project Development 2	3	
	GS-CC-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	8	Total to Date
		Total:	12	72 (17)

Student's Thesis Advisory Committee must be appointed by the end of Term 1 in the student's second year of enrollment.

Term 2:	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-CC-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	84 (17)
Term 3:	GS-CC-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	11	Total to Date
		Total:	12	96 (17)
Term 4:	GS-CC-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	11	Total to Date
		Total:	12	108 (17)
Term 5:		Research Hours/Elective Courses	12	Total to Date
			12	120 (17)

Thirteen additional didactic hours are required for a total of thirty (30)

Qualifying Exam Requirement:

- Must be taken by the end of the second year of enrollment.
- Student must complete all prerequisite activities defined by their program before taking the exam.

Course Requirements beyond Year Two:

Year 3, Term 3:	GS-GS-5103	Responsible Conduct of Research 3	1
Year 4, Term 3:	GS-GS-5104	Responsible Conduct of Research 4	1

Recurring requirements until Graduation:

Terms 1-4:	GS-CC-5100	Student Research Seminar	As required
Terms 1-5:	GS-CC-5050	Dissertation	As required*

**Students shall enroll in the number of credits of Dissertation needed to be enrolled full-time (12 credits) each term through Graduation.*

Research Course Work:

GS-CC-5010	Readings
GS-CC-5030	Research Rotation
GS-CC-5040	Special Projects
GS-CC-5050	Dissertation

Additional Cancer & Cell Biology program courses*:

GS-CC-6101	Cancer	GS-CC-6207	Ethics & Regulatory Prep for Research with Animal Models
GS-CC-6103	Biology of Aging	GS-CC-6210	Tumor, Technology, Therapy
GS-CC-6201	Translational Cancer Biology	GS-CC-6303	Reproductive Biology
GS-CC-6202	Explorative Data Analysis	GS-CC-6304	Biology & Mechanisms of Age-Related Disease
GS-CC-6203	Integrated Microscopy	GS-CC-6401	Technologies for Cancer Drug Discovery & Development *(two-term course)*
GS-CC-6204	Regulation of Energy Homeostasis		
GS-CC-6205	Translational Breast Cancer Research		
GS-CC-6206	Cell Death in Development & Disease		

**Students may select electives from open course options in all graduate programs. Courses may be viewed in the Graduate School Bulletin*

Course Requirement Checklist PhD in Chemical, Physical, & Structural Biology

Students Starting Academic Year: 2025-2026

Foundations Courses (10 credits):				
	GS-GS-6600	Foundations A: Molecules to Systems	6	
	GS-GS-6400	Foundations B: Biostatistics	4	
Program Core Course (3 credits):				
	GS-CP-6304	Molecular Biophysics 1	3	
Didactic Elective Courses (at least 9 credits):				
Responsible Conduct of Research Courses (4 credits):				
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-GS-5103	Responsible Conduct of Research 3	1	
	GS-GS-5104	Responsible Conduct of Research 4	1	
Professional Development Courses (9 credits):				
	GS-CP-5101	Scientific Thinking 1: Research Principles & Practices	1	
	GS-CP-6202	Scientific Thinking 2: Critical Literature Analysis	2	
	GS-CP-6306	Scientific Thinking 3: Writing & Defending Proposals I	3	
	GS-CP-6307	Scientific Thinking 4: Writing & Defending Proposals II	3	
Seminar/Journal Literature Courses:				
	GS-CP-5100	Student Research Seminar	1	
Required in terms 1-4 every year from matriculation through attainment of Permission-To-Write.				
Research Hours: In each term, students enroll in the number of credits [beyond other coursework] needed to be enrolled full-time (minimum 3)				
	GS-CP-5030	Research Rotation	Var.	
Taken each term when a mentor is not appointed (minimum 3 terms)				
	GS-CP-5040	Special Projects	Var.	
Taken each term after a mentor is appointed, and before candidacy is achieved.				
	GS-CP-5050	Dissertation	Var.	
Taken each term after a mentor is appointed, and after candidacy is achieved.				

Graduate Degree Plan
PhD in Chemical, Physical, & Structural Biology

Students Starting Academic Year: 2025-2026

General Degree Requirements:

- Completion of at least 180 term hours
- At least 30 of those term hours must be in Didactic courses
- Completion of at least three terms of Research Rotation before appointing a major advisor
- Students must maintain satisfactory academic progress as detailed in the Student Handbook

Year One Requirements:

Term 1:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-CP-6304	Molecular Biophysics 1	3 (Didactic)	
	GS-CP-5101	Scientific Thinking 1: Research Principles & Practices	1	
	GS-CP-5100	Student Research Seminar	1	
	GS-CP-5030	Research Rotation	3	Total to Date
		Total:	14 (8)	14 (8)
Term 2:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-CP-6202	Scientific Thinking 2: Critical Literature Analysis	2 (Didactic)	
	GS-CP-5100	Student Research Seminar	1	
		Research Rotation/Elective Courses	4	Total to Date
		Total:	12 (7)	26 (15)
Term 3:	GS-CP-6306	Scientific Thinking 3: Writing & Defending Proposals I	3 (Didactic)	
	GS-CP-5100	Student Research Seminar	1	
		Research Rotation/Elective Courses	8	Total to Date
		Total:	12 (3)	38 (18)
Term 4:	GS-CP-6307	Scientific Thinking 4: Writing & Defending Proposals II	3 (Didactic)	
	GS-CP-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	8	Total to Date
		Total:	12 (3)	50 (21)
Term 5:		Research Hours/Elective Courses	12	
		Total:	12	62 (21)

Year Two Requirements:

Term 1:	GS-CP-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	11	Total to Date
		Total:	12	74 (21)

Term 2:	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-CP-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	86 (21)
Term 3:	GS-CP-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	11	Total to Date
		Total:	12	98 (21)
Student's Thesis Advisory Committee must be appointed by the end of Term 3 in the student's second year of enrollment.				
Term 4:	GS-CP-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	11	Total to Date
		Total:	12	110 (21)
Term 5:		Research Hours/Elective Courses	12	Total to Date
			12	122 (21)
Nine additional didactic hours are required for a total of thirty (30)				

Qualifying Exam Requirement:

- Must be taken by the end of the second year of enrollment
- Student must complete all prerequisite activities defined by their program before taking the exam

Course Requirements beyond Year Two:			
Year 3, Term 3:	GS-GS-5103	Responsible Conduct of Research 3	1
Year 4, Term 3:	GS-GS-5104	Responsible Conduct of Research 4	1
Recurring requirements through Graduation:			
Terms 1-4:	GS-CP-5100	Student Research Seminar	As required*
Terms 1-5:	GS-CP-5050	Dissertation	As required*
**Students shall enroll in the number of credits of Dissertation needed to be enrolled full-time (12 credits) each term through Graduation.*			

Research Course Work:

GS-CP-5010	Readings
GS-CP-5030	Research Rotation
GS-CP-5040	Special Projects
GS-CP-5050	Dissertation

Suggested Electives*
Chemical Biology/Pharmacology Emphasis

GS-CP-6205	Chemical Biology	2
GS-CP-6206	Drug Discovery: Bench to Bedside	2
GS-CP-6208	Pharmacology Concepts in Drug Discovery & Development	2

Suggested Electives*
Structural Biology/Biophysics Emphasis

GS-CP-6305	Molecular Biophysics 2	3
GS-CP-6207	Electron Cryomicroscopy	2

**Students may select electives from open course options in all graduate programs. Courses may be viewed in the Graduate School Bulletin*

Course Requirement Checklist

MS in Clinical Investigation

Students Starting Academic Year: 2025-2026

Program Core Courses (16 credits):				
	GS-CT-6300	Fundamentals of Clinical Investigation	3	
	GS-CT-6201	Clinical Investigation 1: Research Development	2	
	GS-CT-6302	Clinical Investigation 2: Research Design	3	
	GS-CT-6303	Clinical Investigation 3: Career Development	3	
	GS-CT-6304	Clinical Investigation 4: Research Application	3	
	GS-CT-6205	Clinical Investigation 5: Grant Evaluation	2	
Biostatistics Course (either GS-GS-6400 or approved substitute):				
	GS-GS-6400	Foundations B: Biostatistics		
Didactic Elective Courses (at least 14 credits):				
Responsible Conduct of Research Course (1 credit):				
	GS-CT-5101	Responsible Conduct of Research for CIs	1	
Research Hours: In each term, students enroll in the number of credits [beyond other coursework] needed to be enrolled full-time (minimum 3)				
	GS-CT-5040	Special Projects	Var.	
Taken each term after a mentor is appointed, and before candidacy is achieved.				
	GS-CT-5050	Dissertation	Var.	
Taken each term after a mentor is appointed, and after candidacy is achieved.				

Graduate Degree Plan
MS in Clinical Investigation

Students Starting Academic Year: 2025-2026

General Degree Requirements:

- Completion of at least 84 term hours
- At least 30 of those term hours must be in Didactic courses
- Students must maintain satisfactory academic progress as detailed in the Student Handbook

Year One Requirements:				
Term 1:	GS-CT-6300	Fundamentals of Clinical Investigation	3 (Didactic)	
	GS-CT-6201	Clinical Investigation 1: Research Development	2 (Didactic)	
	GS-CT-5101	Responsible Conduct of Research for CIs	1	
		Research Hours/Elective Courses	6	Total to Date
		Total:	12 (5)	12 (5)
Term 2:	GS-CT-6302	Clinical Investigation 2: Research Design	3 (Didactic)	
		Research Hours/Elective Courses	9	Total to Date
		Total:	12 (3)	24 (8)
Term 3:	GS-CT-6303	Clinical Investigation 3: Career Development	3 (Didactic)	
		Research Hours/Elective Courses	9	Total to Date
		Total:	12 (3)	36 (11)
		Student's Thesis Advisory Committee must be appointed by the end of term 3 of the student's first year of enrollment.		
Term 4:	GS-CT-6304	Clinical Investigation 4: Research Application	3 (Didactic)	
		Research Hours/Elective Courses	9	Total to Date
		Total:	12 (3)	48 (14)
Term 5:	GS-CT-6205	Clinical Investigation 5: Grant Evaluation	2 (Didactic)	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12 (2)	60 (16)
Year Two Requirements:				
Term 1:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	72 (16)
Term 2:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	84 (16)
Term 3:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	96 (16)
Term 4:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	108 (16)
Term 5:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	120 (16)
		Fourteen additional didactic hours are required for a total of thirty (30)		

Biostatistics Requirement:
Students are required to take GS-GS-6400 Foundations B: Biostatistics, or a substitute biostatistics course approved by the Program Director

Recommended Electives:

Term 3	GS-QC-6201	Applications to Biology of Computation	2 (Didactic)
Term 3	GS-GS-5105	Scientific Writing	1
Term 4	GS-QC-6302	Computer-Aided Discovery Methods	3 (Didactic)
Term 5	GS-CP-6206	Drug Discovery: Bench to Bedside	2 (Didactic)

**Students may select electives from open course options in all graduate programs. Courses may be viewed in the Graduate School Bulletin*

Graduate Degree Plan - Checklist

PhD in Clinical Investigation

Students Starting Academic Year: 2025-2026

Program Core Courses (16 credits):				
	GS-CT-6300	Fundamentals of Clinical Investigation	3	
	GS-CT-6201	Clinical Investigation 1: Research Development	2	
	GS-CT-6302	Clinical Investigation 2: Research Design	3	
	GS-CT-6303	Clinical Investigation 3: Career Development	3	
	GS-CT-6304	Clinical Investigation 4: Research Application	3	
	GS-CT-6205	Clinical Investigation 5: Grant Evaluation	2	
Biostatistics Course (either GS-GS-6400 or approved substitute):				
	GS-GS-6400	Foundations B: Biostatistics		
Didactic Elective Courses (at least 14 credits):				
Responsible Conduct of Research Course (3 credits):				
	GS-CT-5101	Responsible Conduct of Research for CIs	1	
	GS-GS-5103	Responsible Conduct of Research-Year 3	1	
	GS-GS-5104	Responsible Conduct of Research-Year 4	1	
Research Hours: In each term, students enroll in the number of credits [beyond other coursework] needed to be enrolled full-time (minimum 3)				
	GS-CT-5040	Special Projects	Var.	
		Taken each term after a mentor is appointed, and before candidacy is achieved.		
	GS-CT-5050	Dissertation	Var.	
		Taken each term after a mentor is appointed, and after candidacy is achieved.		

Graduate Degree Plan
PhD in Clinical Investigation

Students Starting Academic Year: 2025-2026

General Degree Requirements:

- Completion of at least 180 term hours
- At least 30 of those term hours must be in Didactic courses
- Students must maintain satisfactory academic progress as detailed in the Student Handbook

Year One Requirements:

Term 1:	GS-CT-6300	Fundamentals of Clinical Investigation	3 (Didactic)	
	GS-CT-6201	Clinical Investigation 1: Research Development	2 (Didactic)	
	GS-CT-5101	Responsible Conduct of Research for CIs	1	
		Research Hours/Elective Courses	6	Total to Date
		Total:	12 (5)	12 (5)
Term 2:	GS-CT-6302	Clinical Investigation 2: Research Design	3 (Didactic)	
		Research Hours/Elective Courses	9	Total to Date
		Total:	12 (3)	24 (8)
Term 3:	GS-CT-6303	Clinical Investigation 3: Career Development	3 (Didactic)	
		Research Hours/Elective Courses	9	Total to Date
		Total:	12 (3)	36 (11)
Student's Thesis Advisory Committee must be appointed by the end of term 3 of the student's first year of enrollment.				
Term 4:	GS-CT-6304	Clinical Investigation 4: Research Application	3 (Didactic)	
		Research Hours/Elective Courses	9	Total to Date
		Total:	12 (3)	48 (14)
Term 5:	GS-CT-6205	Clinical Investigation 5: Grant Evaluation	2 (Didactic)	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12 (2)	60 (16)

Quantifying Exam Requirement:

- Student must complete all prerequisite activities defined by the program before the exam.

Year Two Requirements:

Term 1:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	72 (16)
Term 2:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	84 (16)
Term 3:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	96 (16)
Term 4:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	108 (16)
Term 5:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	120 (16)
Fourteen additional didactic hours are required for a total of thirty (30)				

Biostatistics Requirement:
Students are required to take GS-GS-6400 Foundations B: Biostatistics, or a substitute biostatistics course approved by the Program Director

Additional Requirements beyond Year One:			
Term 3	GS-GS-5103	Responsible Conduct of Research 3	1
Term 3	GS-GS-5104	Responsible Conduct of Research 4	1
Recommended Electives:			
Term 3	GS-QC-6201	Applications to Biology of Computation	2 (Didactic)
Term 3	GS-GS-5105	Scientific Writing	1
Term 4	GS-QC-6302	Computer-Aided Discovery Methods	3 (Didactic)
Term 5	GS-CP-6206	Drug Discovery: Bench to Bedside	2 (Didactic)

**Students may select electives from open course options in all graduate programs. Courses may be viewed in the Graduate School Bulletin*

Graduate Degree Plan - Checklist
PhD in Development, Disease Models & Therapeutics

Students Starting Academic Year: 2025-2026

Foundations Courses (10 credits):				
	GS-GS-6600	Foundations A: Molecules to Systems	6	
	GS-GS-6400	Foundations B: Biostatistics	4	
Program Required Coursework (min. 6 credits):				
	GS-DD-6211	Model Systems in Developmental Biology & Disease	2	
	GS-DD-6201 or GS-DD-6301	Development or Human Physiology 1	2 3	
	GS-DD-6214	Method & Logic in Development & Disease Pathophysiology	2	
Additional DDMT Courses (4 additional credits of coursework in GS-DD courses):				
Didactic Elective Courses (10 credits):				
Responsible Conduct of Research Courses (4 credits):				
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-GS-5103	Responsible Conduct of Research 3	1	
	GS-GS-5104	Responsible Conduct of Research 4	1	
Professional Development Courses (3 credits):				
	GS-DD-5101	Effectively Writing & Reviewing Proposals	1	
	GS-GS-5105	Scientific Writing	1	
	GS-GS-5112	Powerful Presentations	1	
Seminar/Journal Literature Courses:				
	GS-DD-5100	Student Research Seminar	1	
Required in terms 2-5 every year from matriculation through attainment of Permission-To-Write.				
	GS-DD-5110	DDMT Journal Club	1	*4 total cr.*
Required in terms 3 and 4 during the first two years of study.				
Research Hours: In each term, students enroll in the number of credits [beyond other coursework] needed to be enrolled full-time (minimum 3)				
	GS-DD-5030	Research Rotation	Var.	
Taken each term before a mentor is appointed or candidacy is achieved (minimum 3 terms)				
	GS-DD-5040	Special Projects	Var.	
Taken each term after a mentor is appointed, and before candidacy is achieved.				
	GS-DD-5050	Dissertation	Var.	
Taken each term after both a mentor is appointed and candidacy is achieved.				

Graduate Degree Plan - Schedule
PhD in Development, Disease Models & Therapeutics

Students Starting Academic Year: 2025-2026

General Degree Requirements:

- Completion of at least 180 term hours
- At least 30 of those term hours must be in Didactic courses
- Completion of at least three terms of Research Rotation before appointing a major advisor
- Students must maintain satisfactory academic progress as detailed in the Student Handbook

Year One Requirements:

Term 1:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-DD-6211	Model Systems in Developmental Biology & Disease	2 (Didactic)	
	GS-GS-5101	Responsible Conduct of Research 1	1	
		Research Rotation/Elective Courses	4	Total to Date
		Total:	12 (7)	12 (7)
Term 2:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-DD-5100	Student Research Seminar	1	
	GS-DD-6201 ***or*** GS-DD-6301	Development ***or*** Human Physiology 1	2 (Didactic) 3 (Didactic)	
		Research Rotation/Elective Courses	3	Total to Date
		Total:	12 (7-8)	24 (14)
Term 3:	GS-GS-5105	Scientific Writing	1	
	GS-DD-5100	Student Research Seminar	1	
	GS-DD-5110	DDMT Journal Club	1	
	GS-DD-6214	Method & Logic in Development & Disease Pathophysiology	2	
		Research Rotation/Elective Courses	7	Total to Date
		Total:	12	36 (16)
Term 4:	GS-DD-5100	Student Research Seminar	1	
	GS-DD-5110	DDMT Journal Club	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	48 (16)
Term 5:	GS-DD-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	11	Total to Date
		Total:	12	60 (16)

Year Two Requirements:

Term 1:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	72 (16)

Term 2:	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-GS-5112	Powerful Presentations	1	
	GS-DD-5101	Effectively Writing & Reviewing Proposals	1	
	GS-DD-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	8	Total to Date
		Total:	12	84 (16)
Term 3:	GS-DD-5100	Student Research Seminar	1	
	GS-DD-5110	DDMT Journal Club	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	96 (16)
Student's Thesis Advisory Committee must be appointed by the end of Term 3 in the student's second year of enrollment.				
Term 4:	GS-DD-5100	Student Research Seminar	1	
	GS-DD-5110	DDMT Journal Club	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	108 (16)
Term 5:	GS-DD-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	11	Total to Date
		Total:	12	120 (16)
4 credits of additional GS-DD coursework, plus 10 additional didactic hours are required for a total of thirty (30).				

Qualifying Exam Requirement:

- Must be taken by the end of the second year of enrollment
- Student must complete all prerequisite activities defined by their program before taking the exam

Course Requirements beyond Year Two:			
Year 3, Term 3:	GS-GS-5103	Responsible Conduct of Research 3	1
Year 4, Term 3:	GS-GS-5104	Responsible Conduct of Research 4	1
Recurring requirements through Graduation:			
Terms 2-5:	GS-DD-5100	Student Research Seminar	As required
Terms 1-5:	GS-DD-5050	Dissertation	As required*
**Students shall enroll in the number of credits of Dissertation needed to be enrolled full-time (12 credits) each term through Graduation.*			

Research Course Work:

GS-DD-5010	Readings	GS-DD-5040	Special Projects
GS-DD-5030	Research Rotation	GS-DD-5050	Dissertation

Additional Development, Disease Models & Therapeutics program courses*:

GS-DD-6101	Epigenetics in Reproductive Biology & Early Development	GS-DD-6302	Human Physiology 2
		GS-DD-6303	Neural Development
GS-DD-6203	Animal Models of Human Disease	GS-DD-6304	Advanced Topics in Cardiac Pathophysiology & Disease
GS-DD-6206	Pathophysiology & Mechanisms of Human Disease	GS-DD-6305	Advanced Topics in Vascular Pathophysiology & Disease
GS-DD-6208	Evolutionary Conservation of Developmental Mechanisms	GS-DD-6306	Topics in Stem Cell Biology
GS-DD-6210	Cardiovascular Diseases		

**Students may select electives from open course options in all graduate programs. Courses may be viewed in the Graduate School Bulletin*

Course Requirement Checklist
PhD in Genetics & Genomics

Students Starting Academic Year: 2025-2026

Foundations Courses (10 credits):				
	GS-GS-6600	Foundations A: Molecules to Systems	6	
	GS-GS-6400	Foundations B: Biostatistics	4	
Program Core Courses (8 credits):				
	GS-GG-6204	Method & Logic in Genetics & Genomics	2	
	GS-GG-6302	Human Genetics	3	
	GS-GG-6305	Model Systems Genetics	3	
Track-Specific Course (choose one based on program track – 2 credits):				
	GS-GG-6202	Mammalian Genetics		*Regular Track*
	GS-GG-6206	Data Mining		*BiGSB Track*
Didactic Elective Courses (at least 6 credits):				
Responsible Conduct of Research Courses (4 credits):				
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-GS-5103	Responsible Conduct of Research 3	1	
	GS-GS-5104	Responsible Conduct of Research 4	1	
Professional Development Courses (5 credits):				
	GS-GS-5105	Scientific Writing	1	
	GS-IY-6403	Effective Grant Writing	4	
Seminar/Journal Literature Courses:				
	GS-GG-5100	Student Research Seminar	1	
Required in terms 1-4 every year from matriculation through attainment of Permission-To-Write.				
	GS-GG-5105	Genetics & Genomics Journal Club	1	*6 total cr.*
Required in terms 3-5 for the first two years of study.				
Research Hours: In each term, students enroll in the number of credits [beyond other coursework] needed to be enrolled full-time (minimum 3)				
	GS-GG-5030	Research Rotation	Var.	
Taken each term when a mentor is not appointed (minimum 3 terms)				
	GS-GG-5040	Special Projects	Var.	
Taken each term after a mentor is appointed, and before candidacy is achieved.				
	GS-GG-5050	Dissertation	Var.	
Taken each term after a mentor is appointed, and after candidacy is achieved.				

Graduate Degree Plan - Schedule
PhD in Genetics & Genomics

Students Starting Academic Year: 2025-2026

General Degree Requirements:

- Completion of at least 180 term hours
- At least 30 of those term hours must be in Didactic courses
- Completion of at least three terms of Research Rotation before appointing a major advisor
- Students must maintain satisfactory academic progress as detailed in the Student Handbook

Track Selection:

Genetics & Genomics students may select to pursue the standard PhD curriculum, or can opt to purse a track in Bioinformatics, Genomics, and Systems Biology (BiGSB). The choice between following the regular track or the BiGSB track is made during the first week of classes in the student's first year in the program. Additional information is available from genetics-gradprgm@bcm.edu.

Year One Requirements:

Term 1:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-GG-5100	Student Research Seminar	1	
		Research Rotation/Elective Courses	5	Total to Date
		Total:	12 (5)	12 (5)
Term 2:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-GG-6305	Model Systems Genetics	3 (Didactic)	
	GS-GG-5100	Student Research Seminar	1	
		Research Rotation/Elective Courses	3	Total to Date
		Total:	12 (8)	24 (13)
Term 3:	GS-GG-6204	Method & Logic in Genetics & Genomics	2 (Didactic)	
	GS-GG-6202 *or* GS-GG-6206	Mammalian Genetics *(Regular track students)* *or* Data Mining *(BiGSB track students)*	2 (Didactic)	
	GS-GS-5105	Scientific Writing	1	
	GS-GG-5100	Student Research Seminar	1	
	GS-GG-5105	Genetics & Genomics Journal Club	1	
		Research Rotation/Elective Courses	5	Total to Date
		Total:	12 (4)	36 (17)
Term 4:	GS-GG-6302	Human Genetics	3 (Didactic)	
	GS-IY-6403	Effective Grant Writing	4 (Didactic)	
	GS-GG-5100	Student Research Seminar	1	
	GS-GG-5105	Genetics & Genomics Journal Club	1	
		Research Hours/Elective Courses	3	Total to Date
		Total:	12 (7)	48 (24)
Term 5:	GS-GG-5105	Genetics & Genomics Journal Club	1	
		Research Hours/Elective Courses	11	Total to Date
		Total:	12	60 (24)

Year Two Requirements:

Term 1:	GS-GG-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	11	Total to Date
		Total:	12	72 (24)
Term 2:	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-GG-5100	Student Research Seminar	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	84 (24)
Term 3:	GS-GG-5100	Student Research Seminar	1	
	GS-GG-5105	Genetics & Genomics Journal Club	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	96 (24)

Student's Thesis Advisory Committee must be appointed by the end of Term 3 in the student's second year of enrollment.

Term 4:	GS-GG-5100	Student Research Seminar	1	
	GS-GG-5105	Genetics & Genomics Journal Club	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	108 (24)
Term 5:	GS-GG-5105	Genetics & Genomics Journal Club	1	
		Research Hours/Elective Courses	11	Total to Date
		Total:	12	120 (24)

Six additional didactic hours are required for a total of thirty (30)

Qualifying Exam Requirement:

- Must be taken by the end of the second year of enrollment
- Student must complete all prerequisite activities defined by their program before taking the exam

Course Requirements beyond Year Two:

Year 3, Term 3:	GS-GS-5103	Responsible Conduct of Research 3	1
Year 4, Term 3:	GS-GS-5104	Responsible Conduct of Research 4	1

Recurring requirements until Graduation:

Terms 1-4:	GS-GG-5100	Student Research Seminar	As required*
Terms 1-5:	GS-GG-5050	Dissertation	As required*

**Students shall enroll in the number of credits of Dissertation needed to be enrolled full-time (12 credits) each term through Graduation.*

Research Course Work:

GS-GG-5010	Readings
GS-GG-5030	Research Rotation
GS-GG-5040	Special Projects
GS-GG-5050	Dissertation

Additional Genetics & Genomics program courses*:

GS-GG-6102	Genetics Epidemiology & Population Genetics	GS-GG-6207	Career Development in Medical Genetics
GS-GG-6203	Gene & Cell Therapy	GS-GG-6301	Bioinformatics & Genomic Analysis
GS-GG-6205	Single Cell Methods & Analysis		

**Students may select electives from open course options in all graduate programs. Courses may be viewed in the Graduate School Bulletin*

Course Requirement Checklist

PhD in Immunology & Microbiology

Students Starting Academic Year: 2025-2026

Foundations Courses (10 credits):				
	GS-GS-6600	Foundations A: Molecules to Systems	6	
	GS-GS-6400	Foundations B: Biostatistics	4	
Program Core Courses (11 credits):				
	GS-IY-6401	Concepts in Host Immune System-Microbe Interactions	4	
	GS-IY-6305	Experimental Immunology & Microbiology	3	
	GS-IY-6403	Effective Grant Writing	4	
Didactic Elective Courses (at least 9 credits):				
Responsible Conduct of Research Courses (4 credits):				
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-GS-5103	Responsible Conduct of Research 3	1	
	GS-GS-5104	Responsible Conduct of Research 4	1	
Professional Development Courses (3 credits):				
	GS-GS-5105	Scientific Writing	1	
	GS-GS-5112	Powerful Presentations	1	
	GS-GS-5113	Designing & Managing Successful Scientific Projects	1	
Seminar/Literature Courses:				
	GS-IY-5100	Student Research Seminar	1	
Required in terms 1-4 every year from matriculation through attainment of Permission-To-Write.				
	GS-IY-5105	Seminars in I & M Research	1	
Required in terms 1-4 every year from matriculation through attainment of Permission-To-Write.				
	GS-IY-5110	Literature Review in I & M	1	*(4 total cr.)*
Required in terms 1 & 2 during the first year and second year.				
Research Hours: In each term, students enroll in the number of credits [beyond other coursework] needed to be enrolled full-time (minimum 3)				
	GS-IY-5030	Research Rotation	Var.	
Taken each term before a mentor is appointed (minimum 3 terms)				
	GS-IY-5040	Special Projects	Var.	
Taken each term after a mentor is appointed, and before candidacy				
	GS-IY-5050	Dissertation	Var.	
Taken each term after candidacy is achieved.				

Graduate Degree Plan

PhD in Immunology & Microbiology

Students Starting Academic Year: 2025-2026

General Degree Requirements:

- Completion of at least 180 term hours
- At least 30 of those term hours must be in Didactic courses
- Completion of at least three terms of Research Rotation before appointing a major advisor
- Students must maintain satisfactory academic progress as detailed in the Student Handbook

Year One Requirements:

Term 1:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-IY-6401	Concepts in Host Immune System-Microbe Interactions	2 (Didactic) *(two-term course)*	
	GS-IY-5100	Student Research Seminar	1	
	GS-IY-5105	Seminars in I & M Research	1	
	GS-IY-5110	Literature Review in I & M	1	
	GS-IY-5030	Research Rotation	3	Total to Date
		Total:	14 (7)	14 (7)
Term 2:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-IY-6401	Concepts in Host Immune System-Microbe Interactions	2 (Didactic) *(two-term course)*	
	GS-IY-5100	Student Research Seminar	1	
	GS-IY-5105	Seminars in I & M Research	1	
	GS-IY-5110	Literature Review in I & M	1	
	GS-IY-5030	Research Rotation	3	Total to Date
		Total:	13 (7)	27 (14)
Term 3:	GS-IY-6305	Experimental Immunology & Microbiology	3 (Didactic)	
	GS-GS-5105	Scientific Writing	1	
	GS-IY-5100	Student Research Seminar	1	
	GS-IY-5105	Seminars in I & M Research	1	
		Research Rotation/Elective Courses	6	Total to Date
		Total:	12 (3)	39 (17)
Term 4:	GS-IY-6403	Effective Grant Writing	4 (Didactic)	
	GS-IY-5100	Student Research Seminar	1	
	GS-IY-5105	Seminars in I & M Research	1	
		Research Hours/Elective Courses	6	Total to Date
		Total:	12 (4)	51 (21)
Term 5		Research Hours/Elective Courses	12	Total to Date
		Total:	12	63 (21)

Year Two Requirements:

Term 1:	GS-GS-5113	Designing & Managing Successful Scientific Projects	1	
	GS-IY-5105	Seminars in I & M Research	1	
	GS-IY-5110	Literature Review in I & M	1	
		Research Hours/Elective Courses	9	Total to Date
		Total:	12	75 (21)

Term 2:	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-GS-5112	Powerful Presentations	1	
	GS-IY-5100	Student Research Seminar	1	
	GS-IY-5105	Seminars in I & M Research	1	
	GS-IY-5110	Literature Review in I & M	1	
		Research Hours/Elective Courses	7	Total to Date
		Total:	12	87 (21)
Term 3:	GS-IY-5100	Student Research Seminar	1	
	GS-IY-5105	Seminars in I & M Research	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	99 (21)
Student's Thesis Advisory Committee must be appointed by the end of Term 3 in the student's second year of enrollment.				
Term 4:	GS-IY-5100	Student Research Seminar	1	
	GS-IY-5105	Seminars in I & M Research	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	111 (21)
Term 5:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	123 (21)
Nine additional didactic hours are required for a total of thirty (30)				

Qualifying Exam Requirement:

- Must be taken by the end of the second year of enrollment
- Student must complete all prerequisite activities defined by their program before taking the exam

Course Requirements beyond Year Two:			
Year Three, Term 3:	GS-GS-5103	Responsible Conduct of Research 3	1
Year Four, Term 3:	GS-GS-5104	Responsible Conduct of Research 4	1
Recurring Requirements until Graduation:			
Terms 2-4:	GS-IY-5100	Student Research Seminar	As required
Terms 1-4:	GS-IY-5105	Seminars in I & M Research	As required
Terms 1-5:	GS-IY-5050	Dissertation	As required*

**Students shall enroll in the number of credits of Dissertation needed to be enrolled full-time (12 credits) each term through Graduation.*

Research Course Work:

GS-IY-5010	Readings	GS-IY-5040	Special Projects
GS-IY-5030	Research Rotation	GS-IY-5050	Dissertation

Additional Immunology & Microbiology program courses*:

GS-IY-6200	Principles of Immunology	GS-IY-6205	Microbiome Methodology & Data Analysis
GS-IY-6201	Cells, Tissues & Organs	GS-IY-6206	Bacterial Pathogenesis
GS-IY-6202	The Microbiome	GS-IY-6301	Immunology
GS-IY-6204	Vaccinology		

**Students may select electives from open course options in all graduate programs. Courses may be viewed in the Graduate School Bulletin*

Course Requirement Checklist
PhD in Neuroscience

Students Starting Academic Year: 2025-2026

Foundations Course (4 credits):				
	GS-GS-6400	Foundations B: Biostatistics	4	
Program Core Courses (22 credits):				
	GS-NE-5111	Neuroscience Lab 1	1	
	GS-NE-5112	Neuroscience Lab 2	1	
	GS-NE-6101	Core Concepts in Computational Neuroscience	1	
	GS-NE-6201	Analyses of Neuronal Function	2	
	GS-NE-6202	Anatomy of the Nervous System	2	
	GS-NE-6204	Neurobiology of Disease	2	
	GS-NE-6206	Genetics: Principles, Applications & Tools for Neuroscience	2	
	GS-NE-6207	Electrophysiology of Neurons	2	
	GS-NE-6301	Neural Systems 1	3	
	GS-NE-6302	Neural Systems 2	3	
	GS-NE-6304	Brain Cell Biology & Development	3	
Didactic Elective Courses (at least 6 credits):				
Responsible Conduct of Research Courses (4 credits):				
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-GS-5103	Responsible Conduct of Research 3	1	
	GS-GS-5104	Responsible Conduct of Research 4	1	
Professional Development Course (choose at least one from list – 1 credit):				
	GS-GS-5105	Scientific Writing		
	GS-GS-5112	Powerful Presentations		
	GS-NE-5101	Preparing for Your Neuroscience Qualifying Exam		
Seminar/Journal Literature Courses:				
	GS-NE-5200	Student Journal Club in Neuroscience	2	*12 total cr.*
		Required in terms 2-4 during the first two years of study.		
Research Hours: In each term, students enroll in the number of credits [beyond other coursework] needed to be enrolled full-time (minimum 3)				
	GS-NE-5030	Research Rotation	Var.	
		Taken each term when a mentor is not appointed (minimum 3 terms)		
	GS-NE-5040	Special Projects	Var.	
		Taken each term after a mentor is appointed, and before candidacy is achieved.		
	GS-NE-5050	Dissertation	Var.	
		Taken each term after a mentor is appointed, and after candidacy is achieved.		

Graduate Degree Plan
PhD in Neuroscience

Students Starting Academic Year: 2025-2026

General Degree Requirements:

- Completion of at least 180 term hours
- At least 30 of those term hours must be in Didactic courses
- Completion of at least three terms of Research Rotation before appointing a major advisor
- Students must maintain satisfactory academic progress as detailed in the Student Handbook

Year One Requirements:

Term 1:	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-NE-5111	Neuroscience Lab 1	1	
	GS-NE-6207	Electrophysiology of Neurons	2 (Didactic)	
	GS-NE-6304	Brain Cell Biology & Development	3 (Didactic)	
		Research Rotation/Elective Courses	5	Total to Date
		Total:	12 (5)	12 (5)
Term 2:	GS-NE-5112	Neuroscience Lab 2	1	
	GS-NE-6201	Analyses of Neuronal Function	2 (Didactic)	
	GS-NE-6202	Anatomy of the Nervous System	2 (Didactic)	
	GS-NE-5200	Seminar Journal Club in Neuroscience	2	
		Research Rotation/Elective Courses	5	Total to Date
		Total:	12 (4)	24 (9)
Term 3:	GS-NE-6206	Genetics: Principles, Applications & Tools for Neuroscience	2 (Didactic)	
	GS-NE-6301	Neural Systems 1	3 (Didactic)	
	GS-NE-5200	Seminar Journal Club in Neuroscience	2	
		Research Rotation/Elective Courses	5	Total to Date
		Total:	12 (5)	36 (14)
Term 4:	GS-NE-6101	Core Concepts in Computational Neuroscience	1 (Didactic)	
	GS-NE-6204	Neurobiology of Disease	2 (Didactic)	
	GS-NE-6302	Neural Systems 2	3 (Didactic)	
	GS-NE-5200	Seminar Journal Club in Neuroscience	2	
		Research Hours/Elective Courses	4	Total to Date
		Total:	12 (6)	48 (20)
Term 5:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	60 (20)

Year Two Requirements:

Term 1:	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12 (2)	72 (22)

2nd-Year Course Requirement:

Students must enroll in at least one of the following:

- GS-NE-5101 Preparing for your Neuroscience Qualifying Exam (Term 2)
- GS-GS-5112 Powerful Presentations (Term 2)
- GS-GS-5105 Scientific Writing (Term 3)

Term 2:	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-NE-5200	Seminar Journal Club in Neuroscience	2	
		Research Hours/Elective Courses	7	Total to Date
		Total:	12 (2)	84 (24)
Term 3:	GS-NE-5200	Seminar Journal Club in Neuroscience	2	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	96 (24)

Student's Thesis Advisory Committee must be appointed by the end of Term 3 in the student's second year of enrollment.

Term 4:	GS-NE-5200	Seminar Journal Club in Neuroscience	2	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	108 (24)
Term 5:		Research Hours/Elective Courses	12	Total to Date
			12	120 (24)

Six additional didactic hours are required for a total of thirty (30)

Qualifying Exam Requirement:

- Must be taken by the end of the second year of enrollment.
- Student must complete all prerequisite activities defined by their program before taking the exam

Course Requirements beyond Year Two:

Year 3, Term 3:	GS-GS-5103	Responsible Conduct of Research 3	1
Year 4, Term 3:	GS-GS-5104	Responsible Conduct of Research 4	1

Recurring requirements through Graduation:

Terms 1-5:	GS-NE-5050	Dissertation	As required*

**Students shall enroll in the number of credits of Dissertation needed to be enrolled full-time (12 credits) each term through Graduation.*

Research Course Work:

GS-NE-5010	Readings
GS-NE-5030	Research Rotation
GS-NE-5040	Special Projects
GS-NE-5050	Dissertation

Additional Neuroscience program courses*:

GS-NE-6208	Concepts of Learning & Memory
GS-NE-6303	Electrical Signaling in the Brain
GS-NE-6402	Cellular Neurophysiology & Visual Neuroscience

**Students may select electives from open course options in all graduate programs. Courses may be viewed in the Graduate School Bulletin*

Course Requirement Checklist

PhD in Quantitative & Computational Biosciences

Students Starting Academic Year: 2025-2026

Foundations Courses (10 credits):				
	GS-GS-6600	Foundations A: Molecules to Systems	6	
	GS-GS-6400	Foundations B: Biostatistics	4	
Program Core Courses (13 credits):				
	GS-QC-6202	Computational Project Design & Grant Writing	2	
	GS-QC-6303	Advanced Computer Programming for Biosciences	3	
	GS-QC-6401	Quantitative & Computational Methods for Biosciences 1	4	
	GS-QC-6402	Quantitative & Computational Methods for Biosciences 2	4	
Didactic Elective Courses (at least 7 credits):				
Responsible Conduct of Research Courses (4 credits):				
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-GS-5103	Responsible Conduct of Research 3	1	
	GS-GS-5104	Responsible Conduct of Research 4	1	
Professional Development Course (1 credit):				
	GS-GS-5105	Scientific Writing	1	
Seminar/Journal Literature Courses:				
	GS-QC-5110	Advanced Topics in QCB	1	*2 total cr.*
		Required in terms 1 and 2 of the first year of study.		
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
		Required in terms 1-4 every year from matriculation through attainment of Permission-To-Write.		
	GS-QC-5100	Student Research Seminar	1	
		Required in term 4 every year from matriculation through attainment of Permission-To-Write.		
Research Hours: In each term, students enroll in the number of credits [beyond other coursework] needed to be enrolled full-time (minimum 3)				
	GS-QC-5030	Research Rotation	Var.	
		Taken each term when a mentor is not appointed (minimum 3 terms)		
	GS-QC-5040	Special Projects	Var.	
		Taken each term after a mentor is appointed, and before candidacy is achieved.		
	GS-QC-5050	Dissertation	Var.	
		Taken each term after a mentor is appointed, and after candidacy is achieved.		

Graduate Degree Plan
PhD in Quantitative & Computational Biosciences

Students Starting Academic Year: 2025-2026

General Degree Requirements:

- Completion of at least 180 term hours
- At least 30 of those term hours must be in Didactic courses
- Completion of at least three terms of Research Rotation before appointing a major advisor
- Students must maintain satisfactory academic progress as detailed in the Student Handbook

Year One Requirements:

Term 1:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-QC-6303	Advanced Computer Programming for Biosciences	3 (Didactic)	
	GS-GS-5101	Responsible Conduct of Research 1	1	
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
	GS-QC-5110	Advanced Topics in QCB	1	
		Research Rotation/Elective Courses	3	Total to Date
		Total:	14 (8)	14 (8)
Term 2:	GS-GS-6600	Foundations A: Molecules to Systems	3 (Didactic) *(two-term course)*	
	GS-GS-6400	Foundations B: Biostatistics	2 (Didactic) *(two-term course)*	
	GS-QC-6401	Quantitative & Computational Methods in Biosciences 1	4 (Didactic)	
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
	GS-QC-5110	Advanced Topics in QCB	1	
	GS-QC-5030	Research Rotation	3	Total to Date
		Total:	14 (9)	28 (17)
Term 3:	GS-QC-6402	Quantitative & Computational Methods in Biosciences 2	4 (Didactic)	
	GS-GS-5105	Scientific Writing	1	
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
		Research Rotation/Elective Courses	6	Total to Date
		Total:	12 (4)	40 (21)
Term 4:	GS-QC-6202	Computational Project Design & Grant Writing	2 (Didactic)	
	GS-QC-5100	Student Research Seminar	1	
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
		Research Hours/Elective Courses	7	Total to Date
		Total:	12 (2)	52 (23)
Term 5:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	64 (23)

Year Two Requirements:

Term 1:	GS-QC-5105	Seminar in Quantitative Biosciences	1	Total to Date
		Research Hours/Elective Courses	11	
		Total:	12	76 (23)
Term 2:	GS-GS-5102	Responsible Conduct of Research 2	1	
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	88 (23)
Term 3:	GS-QC-5105	Seminar in Quantitative Biosciences	1	Total to Date
		Research Hours/Elective Courses	11	
		Total:	12	100 (23)
Student's Thesis Advisory Committee must be appointed by the end of Term 3 in the student's second year of enrollment.				
Term 4:	GS-QC-5100	Student Research Seminar	1	
	GS-QC-5105	Seminar in Quantitative Biosciences	1	
		Research Hours/Elective Courses	10	Total to Date
		Total:	12	112 (23)
Term 5:		Research Hours/Elective Courses	12	Total to Date
		Total:	12	124 (23)
Seven additional didactic hours are required for a total of thirty (30)				

Qualifying Exam Requirement:

- Must be taken by the end of the second year of enrollment.
- Student must complete all prerequisite activities defined by their program before taking the exam

Course Requirements beyond Year Two:

Year Three, Term 3:	GS-GS-5103	Responsible Conduct of Research 3	1
Year Four, Term 3:	GS-GS-5104	Responsible Conduct of Research 4	1

Recurring Requirements until Graduation:

Terms 1-4:	GS-QC-5105	Seminar in Quantitative Biosciences	As required
Term 4:	GS-QC-5100	Student Research Seminar	As required
Terms 1-5:	GS-QC-5050	Dissertation	As required*

**Students shall enroll in the number of credits of Dissertation needed to be enrolled full-time (12 credits) each term through graduation.*

Research Course Work:

GS-QC-5010	Readings
GS-QC-5030	Research Rotation
GS-QC-5040	Special Projects
GS-QC-5050	Dissertation

Additional Quantitative & Computational Biosciences program course*:

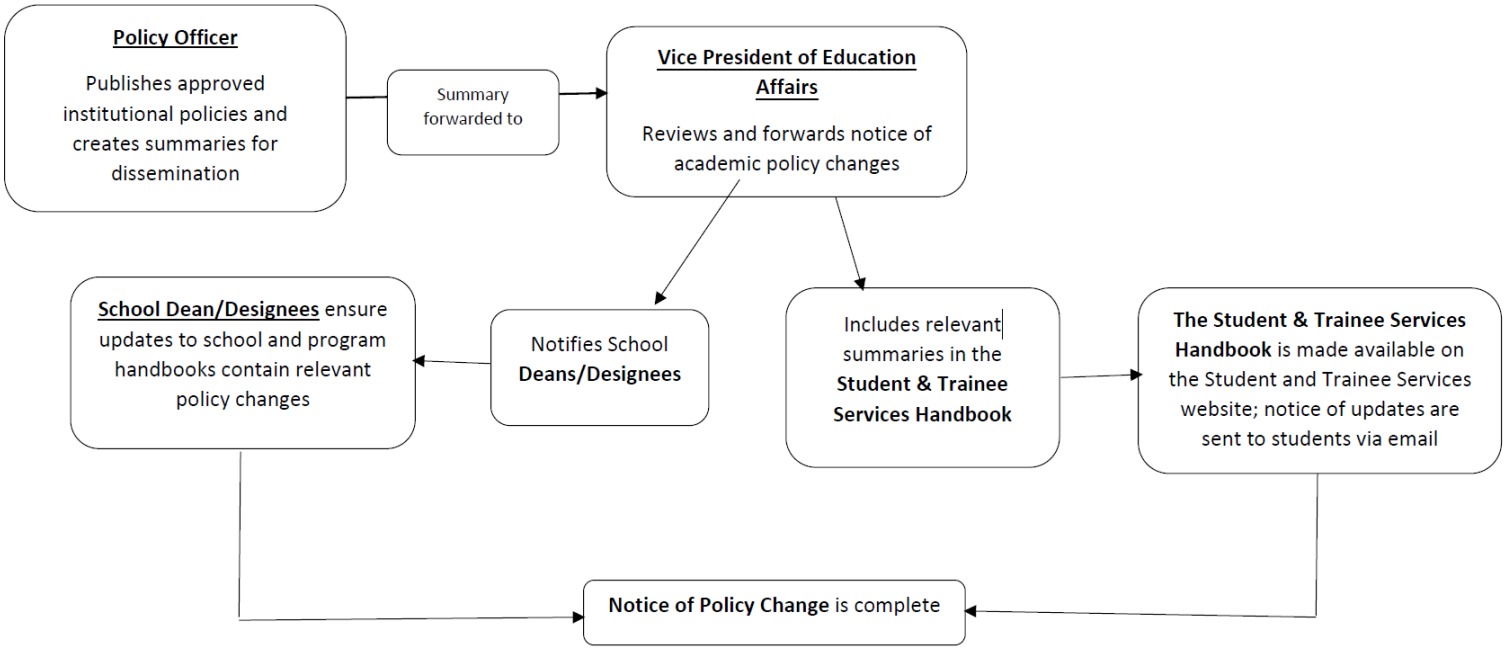
GS-QC-6201	Applications to Biology of Computation
GS-QC-6301	Practical Introduction to Scientific Programming in Python
GS-QC-6302	Computer-Aided Discovery Methods

**Students may select electives from open course options in all graduate programs.*
Courses may be viewed in the Graduate School Bulletin
Additionally, students may request to attend a limited number of courses offered by partner TMC institutions.
Contact qcb-grad@bcm.edu for details.

Baylor College of Medicine

Baylor College of Medicine's Student Policy Communication Process

Baylor's Student Policy Communication Process describes the steps for the dissemination of policies approved by Baylor's Institutional Policy Committee. Please refer to this process established to communicate the approved policies applicable to the student body.



Last Updated 08/01/2023

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