



TEXAS TECH UNIVERSITY
HEALTH SCIENCES CENTER™
EL PASO

Graduate School of Biomedical Sciences

2017-18 Catalog

Texas Tech University Health Sciences Center El
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Preface

The purpose of this publication is to assemble a set of guidelines and requirements that all students are subject to at the time of admission into the Texas Tech University Health Sciences Center El Paso (TTUHSC El Paso) Graduate School of Biomedical Sciences (GSBS).

The TTUHSC El Paso GSBS reserves the right to make changes to this handbook as necessary, with or without notice. Every effort will be made to notify all faculty and students when changes are made. The TTUHSC El Paso GSBS reserves the right to institute, after due notice and during the course of a student's work toward a degree, any new ruling that may be necessary for the good of the university and therefore, ultimately, of recipients of its degrees. Normally, a student may graduate under the provisions of the catalog in effect at the time of enrollment in the TTUHSC El Paso GSBS. The TTUHSC El Paso GSBS also reserves the right to make changes to courses as needed. The right to make changes to tuition and fees is reserved as regulated by the Board of Regents.

All students are subject to the requirements listed in the TTUHSC El Paso Institutional Student Handbook Code of Professional and Academic Conduct, the Graduate School of Biomedical Sciences catalog, and the guidelines and requirements for graduate students given below.

Students with disabilities who need assistance should contact the Office of Students Services located in room 1210 of the Medical Education Building.

elpaso.ttuhschool.edu/studentservices

Statement of Accreditation

Texas Tech University Health Sciences Center is accredited by the Southern Association of Colleges and Schools Commission on Colleges to award baccalaureate, masters, doctoral, and professional degrees. Texas Tech University Health Sciences Center El Paso is a part of Texas Tech University Health Sciences Center and is currently seeking separate accreditation by the Southern Association of Colleges and Schools Commission on Colleges. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of Texas Tech University Health Sciences Center.

Mission Statement

The mission of Texas Tech University Health Sciences Center at El Paso is to improve the lives of people in our State and our community by focusing on the unique health care needs of socially and culturally diverse border populations through excellence in integrated education, research, and patient care

The Graduate School of Biomedical Sciences (GSBS) supports the institutional mission by providing superior graduate education as well as leadership in increasing knowledge and understanding through scholarship and research.

The mission of the Texas Tech University Health Sciences Center El Paso Graduate School of Biomedical Sciences is to educate the next generation of scientists and health-related professionals by providing a dynamic research environment

oriented to satisfy the learning needs of a multicultural group of students by fostering creativity and discovery.

The faculty and staff of the GSBS are committed to following the institutional goals and measurable priorities that will enable it to fulfill its mission, including:

- Training competent health professionals and scientists
- Increasing externally funded, peer-reviewed research — especially NIH funded research — with an emphasis on cancer, infectious disease, neuropsychiatric disorders, and diabetes.
- Improving access to quality health care for TTUHSC El Paso's target populations
- Preparing students in the health professions for an increasingly diverse workforce and patient population
- Providing leadership in the development of partnerships and collaborations to improve community health

Expected Student Learning Outcomes

Student learning outcomes for graduates of the Graduate School of Biomedical Sciences are described below:

Biomedical Concepts and Theories

Students will be able to comprehend basic concepts and theories in the fields of biochemistry, cell biology, laboratory methodologies, genes and function, and biomedical research in relation to human physiology and diseases.

Written and Verbal Communication

Students will be able to express and discuss effectively with peers and professors through oral presentations and written discourse.

Independent Research

Students will be able to plan, organize, conduct, and analyze biomedical research with direction from principal investigator.

Critical Thinking

Students will be able to recall, explain, integrate, and apply key concepts related to the fields of cancer research, infectious diseases, neurosciences, and diabetes & metabolism.

Ethical Behavior

Students will be able to identify, analyze, relate, and address the regulatory environment as well as the normative ethics of conducting biomedical research.

Analytical Thinking

Students will be able to display their understanding of analyzing and presenting data in order to design experiments and present genetic data analysis and basic biostatistics

Programs

The Graduate School of Biomedical Sciences (GSBS) has two programs: a Master of Science in Biomedical Sciences and a post-baccalaureate certificate program.

For additional information, please contact the GSBS office at GSBSEP@ttuhsc.edu.

M.S. in Biomedical Sciences

The M.S. in Biomedical Sciences program provides foundational coursework in the areas of biochemistry, cell biology, and genetics, in addition to elective courses that explore specialized topics, recent advances, and current literature within the field. Instruction in these areas is provided by expert researchers and educators affiliated with both the Graduate School of Biomedical Sciences (GSBS) and the Paul L. Foster School of Medicine (PLFSOM).

Beyond providing the necessary coursework within the area of biomedical science, the primary emphasis of the program is to ensure a superior and competitive training environment in diverse, state-of-the-art research labs.

Students are expected to engage in a mentored research project, and will author as well as collaborate in writing publication(s) in prominent, peer-reviewed scientific journals. Students graduating from this program are prepared for work at the forefront of biomedical research and are highly competitive for positions that meet their individual interests, both in academia and industry.

The GSBS is organized into four Centers of Emphasis (CoEs): cancer, diabetes and metabolism, infectious diseases, and neurosciences. The CoEs explore the dynamics of cancer, cell biology, HIV, West Nile virus, influenza, nanomedicine, population genetics of psychiatric disorders, degenerative neurological diseases, and the genetics of the special senses.

Post-Baccalaureate Certificate Program

Graduate certificates are intended to meet the supplemental post-baccalaureate educational needs of professionals. A graduate certificate program is a set of courses that provides a knowledge base and in-depth expertise in a specific subject matter. To take any graduate-level course, all prerequisite courses (including undergraduate courses) must first be completed. Students interested in the post-baccalaureate certificate program are required to have a bachelor's degree.

Graduate credits earned while enrolled in the post-baccalaureate certificate program may be applied toward the M.S. in Biomedical Sciences at the discretion of the dean, after all other admissions requirements have been fulfilled.

If a master's student is in good standing and drops out of the program, he/she may be eligible to receive a graduate certificate if the necessary courses have been taken. To receive a graduate certificate, the student must have a grade point average (GPA) of 3.0 or better. No grade lower than a C is accepted.

Students in the two-semester certificate program complete a biomedical studies core curriculum. Successful completion of the post-baccalaureate program curriculum, as well as other admissions requirements, ensures an interview with the Paul L. Foster School of Medicine (PLFSOM).

Admissions

Admission to either of the Graduate School of Biomedical Sciences (GSBS) programs is granted by the dean, upon the recommendation of the admissions committee. All applicants considered for admission must be in good standing with the school last attended. Only students who have submitted completed applications will be considered for admission. A completed application consists of the following:

- 1. An application to the Texas Tech University Health Sciences Center El Paso (TTUHSC El Paso) GSBS**

- a. Must be submitted at least three months prior to the target enrollment date.
- b. Applications are submitted online. All sections of the online application must be completed and submitted **prior** to the application closing date.
- c. Any admissions offer made under falsified application information is void.
- d. See elpaso.ttuhs.edu/gsbs/admissions/default.aspx for a complete list of admissions requirements.
- e. All applications are reviewed by the admissions committee. Offers are made in accordance with the committee's recommendation and by approval of the dean.
- f. Initial matriculation takes place in the fall semester.
- g. Any exceptions to these guidelines are made on a case-by-case basis with support from a faculty mentor, recommendation by the admissions committee, and approval of the dean.

2. Official Graduate Record Examination (GRE) scores

- a. To be considered for admission into the master's program, applicants need to submit a GRE score report that is no more than five years old.
- b. This requirement applies to all degree program applicants, regardless of educational background. In accordance with [Texas Education Code §51.842](#), an applicant's performance on a standardized test is not to be used in the admissions or competitive scholarship process as the sole criterion to end consideration of the applicant.
- c. All test scores must be sent directly by the Educational Testing Service to the GSBS main office. Photocopies or scanned copies of GRE scores will not be accepted.
- d. The institution code for the GSBS is **7452**.
- e. Information about the GRE may be obtained from the Educational Testing Service, P.O. Box 6000, Princeton, NJ, 08541-6000, or gre.org.

3. Official Medical College Admission Test (MCAT) scores

- a. To be considered for admission into the post-baccalaureate certificate program, applicants must submit an MCAT score report that is no more than five years old.
- b. All test scores must be sent directly to the GSBS main office. Photocopies or scanned copies of MCAT scores will not be accepted.
- c. This is a requirement for all applicants to the post-baccalaureate certificate program. Information about the MCAT may be obtained at aamc.org/.

4. Official transcripts

- a. U.S. applicants must have earned a bachelor's degree from a regionally accredited institution in the United States or the equivalent of a U.S. bachelor's degree from a foreign institution, which typically requires at least 120 U.S.-equivalent credit hours. U.S. applicants must submit an official transcript from each college or university attended. All degrees earned must appear on official transcripts.

- b. Applicants who attended an institution outside the U.S. must provide a course-by-course evaluation of all coursework taken at any degree-granting institution(s) recognized by the country's government/governmental ministry. Any applicant who, because of current enrollment, cannot provide a final course-by-course transcript evaluation at the time of application must submit transcript evaluations of all completed coursework. Consideration for admission may be granted on the condition that a final course-by-course transcript evaluation is provided prior to enrollment. If the transcript evaluation states that an applicant has less than 120 U.S.-equivalent credit hours and lacks the equivalent of a U.S. bachelor's degree, then the applicant has the option to seek an alternative evaluation from another GSBS-approved evaluation company and the GSBS will accept the evaluation that supports admission.
- c. Applicants must submit at least six semesters of coursework. Applicants must be in good standing with all schools attended, and be able to provide either official transcripts from any U.S. university attended, or course-by-course transcript evaluations and diploma information. The online application includes a list of approved transcript evaluation services. Applicants are advised not send international transcripts or mark sheets to TTUHSC El Paso.

5. Letters of recommendation

- a. A minimum of two letters of recommendation are required.
- b. All letters of recommendation must be submitted either through the online application system or — if sent directly from the recommender's institutional or work email address — emailed to GSBSEP@ttuhsc.edu.
- c. Letters of recommendation or forms submitted by the applicant will not be accepted unless the original hard copy is submitted in a sealed envelope.

6. Required immunizations

- a. In order to protect the health of our students and the health of the patients with whom they come in contact, TTUHSC El Paso requires all entering students to provide documentation of all required immunizations.
- b. All applicants are required to show proof of the following, regardless of whether they have had any history of the disease.
 - i. Two immunizations for varicella (chicken pox) or a titer proving immunity
 - ii. Two doses of measles, mumps, and rubella or a titer proving immunity
 - iii. A two-step tuberculosis skin test administered within the last 12 months
 - iv. The hepatitis B series
 - v. A tetanus/diphtheria (Td) vaccine
 - vi. A Tdap (tetanus, diphtheria, and acellular pertussis) vaccine; for adults, a one-time dose starting in 2005
 - vii. A meningococcal vaccine (MCV); for adults 22 and younger, administered within the last five years

- c. Immunization requirements are based on the regulations, guidelines, and recommendations set forth by the October 2012 Texas Administrative Code (TAC), the Texas Department of State Health Services (DSHS), the U.S. Centers for Disease Control and Prevention (CDC), and the U.S. Advisory Committee for Immunization Practices (ACIP).
 - d. The meningitis records must be submitted immediately, and all other requirements prior to orientation.
 - e. Student immunization records are kept on file in Occupational Health. As immunizations are updated, students must provide written documentation to Occupational Health. Provisions for immunization requirements and implementation procedures for all TTUHSC El Paso employees, volunteers, and students can be found under HSCEP OP 75.11., [Attachment A-Health Surveillance Program for Students](#).
7. **Oath of Residency:** All applicants must complete an Oath of Residency form, provided through the online application.
 8. **Essay:** All applicants must submit a written essay through the online application.
 9. **Application fee:** A one-time, non-refundable application fee of \$45 for graduate study.
 10. **Placement fee:** A \$50 placement fee is required upon acceptance of admission offer. This fee secures the student's seat for matriculation.

All applicants should allow ample time for required support documents to be received and added to the application file. **Applicants will not be considered for evaluation until the GSBS main office receives all of the required documents.** Applicants will be notified when an admission decision has been made.

There are three main criteria used to evaluate all applicants for admission:

1. **Academic records:** All academic records may be considered.
2. **Test scores:** Scores from the general Graduate Record Examination (GRE) test or the Medical College Admission Test (MCAT) depending on the program.
 - a. To submit an MCAT score in lieu of a GRE score, students must contact the GSBS main office/ This only applies for applicants to the master's program.
3. **Individual profile:** Profiles may include recommendations and/or information on the student's research background, motivation, multilingual proficiency, undergraduate institution(s), presentations, portfolios, or interviews. Admissions

committees may also consider work experience, demonstrated commitment to a particular field or study, and community involvement.

Enrollment

Students who have been granted admission to the Graduate School of Biomedical Sciences (GSBS) are expected to register for classes. Failure to register in the term for which admission is granted requires an application for readmission. Registration information is provided during new student orientation prior to the beginning of the fall semester. Graduate students are permitted to register at any time beginning the first day of advance registration. Advance registration usually begins in April for the fall semester, and in November for the spring semester. Online registration is available to all admitted students. Instructions for registration and add/drop procedures can be found on elpaso.ttuhsu.edu/gsbs.

Upon admission, all GSBS students are subject to the requirements listed in the Texas Tech University Health Sciences Center El Paso (TTUHSC El Paso) Institutional Student Handbook Code of Professional and Academic Conduct, the GSBS catalog, and the GSBS student handbook.

Core curriculum: Core curriculum courses are taken in both semesters of the first year. The curriculum is designed to give all GSBS students a unified and coordinated foundation that serves as a basis for further study in individual disciplines within the biomedical sciences.

Core curriculum coursework includes Biochemistry, Cell Biology, Laboratory Methods in Biomedical Sciences, a Biomedical Sciences Seminar, Genes and Function, and Introduction to Statistical Methods in Biomedical Sciences. Additionally, GSBS students are required to complete a course in ethics (GSBS 5101, Responsible Conduct of Research) in the second semester. See Core Curriculum for more information.

Schedule changes and withdrawals: Any graduate student who wishes to add or drop a course must initiate such action with the GSBS office. Students should follow the academic calendar for deadlines associated with adding/dropping classes and withdrawing from a course. If a student fails to attend a course in which he/she is enrolled without filing an official withdrawal will receive an F in that course.

Full-time study: GSBS semesters are 16 weeks-long, 15 weeks of instruction plus one week for final examinations. Any exceptions to this rule must have the prior approval of the GSBS office. Full-time enrollment is considered 9 credit hours for students during a

regular semester. Students receiving (a) scholarship(s) must meet full-time enrollment requirements each semester.

Registration: Students are required to register for the appropriate courses in every semester in which they expect to receive assistance, use the facilities of the university, or take comprehensive examinations.

The number of hours for which a student must enroll in each semester depends on his/her level of involvement in research and use of university facilities and faculty time.

Registration without credit (auditing): Persons who wish to audit a course for no grade must complete and submit a Permissions to Audit Course Without Credit form from the GSBS main office. Those who audit a course do so for the purpose of hearing or seeing only and do not receive credit or a grade in the course. Students auditing a course will not be listed on the class roll, and no notation of the audit will be made on the student's transcript.

Faculty and staff course registration: Full-time members of Texas Tech University Health Sciences Center El Paso (TTUHSC El Paso) faculty and staff may enroll in courses with the permission of the course director, and by submitting a GSBS application. By registering for graduate work, any faculty or staff enrolled in coursework become subject to the regulations of the GSBS. However, no member of the faculty who has held rank higher than instructor at TTUHSC El Paso is eligible to pursue a graduate degree program at this institution, unless approved by the GSBS office.

General Information

Academic probation and dismissal: All students enrolled in the GSBS are required to maintain a high level of performance and comply fully with the policies of the institution. The GSBS reserves the right to place on probation or dismiss any graduate student who does not maintain satisfactory academic standing or who fails to conform to the regulations of Texas Tech University Health Sciences Center El Paso (TTUHSC El Paso). Probation applies for a designated period of time and may lead to more severe disciplinary sanctions if the student is found to be in violation of any institutional regulation(s) during the probationary period.

1. If a student's grade point average (GPA) for a particular semester falls below 3.0, the student is placed on academic probation. The student must make a 3.0 GPA or better in the next semester in which he/she is enrolled. Failure to maintain a 3.0 GPA or higher in each succeeding semester may result in academic dismissal from the GSBS. Regulations governing scholastic probation are based on semester grade-point averages and apply regardless of overall grade-point average.

2. The minimum requirement for graduation is a cumulative GPA of 3.0 in all courses taken for graduate credit.
3. Students are also required to follow the code of professional and academic conduct. Failure to do so may be grounds for dismissal, such as cheating or plagiarism. (see the TTUHSC El Paso Student Affairs Handbook for further information). Appeals for this type of dismissal are subject to the provisions under the code of student conduct. See the TTUHSC El Paso Student Affairs Handbook and the GSBS student handbook for further information.
4. Students who have been dismissed must appeal to the GSBS for reinstatement, if desired.
5. Students may not drop a core course for academic reasons (reasonable exceptions may be made for sickness, etc., at the discretion of the GSBS dean).
6. Students who receive a grade of C or below in core courses are required to repeat the course.
7. Students who receive a grade of C or below in two or more core courses are subject to dismissal.

Attendance: Whenever attendance and/or participation forms a basis for a portion or all of a course grade, students are provided with explicit written information (within the course syllabus) during the first week of classes. Such information is specific with regard to the penalty incurred for each absence and the means, if any, to compensate for the absence. It should be recognized that there may be certain situations where the student may not be permitted to make up the absence(s). Excused absences are determined by the course director.

Extracurricular activities: Graduate students may participate in extracurricular activities within the guidelines of university policies. The Graduate Student Association (GSA) and the Student Government Association (SGA) offer many opportunities for participation. Students are also encouraged to participate in TTUHSC El Paso's Annual Research Colloquium. Faculty do not hold exams during the week of the colloquium (unless an exception has been granted by the GSBS dean prior to the beginning of the spring semester) so that all GSBS students can participate and gain experience presenting their research.

Grade requirement for graduation: The minimum cumulative GPA required for graduation is a 3.0 (includes all courses taken for graduate credit).

Semester of graduation: The official graduation date is in May. Every candidate for a graduate degree and certificate of completion must be registered at the GSBS in the semester of graduation. Failure to graduate at the expected time requires additional registrations, as necessary, until graduation. Any student who does not complete all requirements for a graduate degree within the time limit will be dismissed. Per reporting guidelines established by the Texas Higher Education Coordinating Board (THECB), students seeking master's degrees are expected to graduate within five years. Students receiving financial assistance who wish to reduce their credit hours should first consult financial aid.

Graduation fee: Early in the semester of graduation, candidates for graduation must pay a graduation fee to cover the cost of printing the diploma. This fee is paid again if the student does not graduate in the semester in which the fee was paid.

Statement of intent to graduate: Any student planning to graduate must file a statement of intent to graduate with the GSBS main office at the beginning of the semester of intended graduation. No candidate's name will be placed on a tentative list for graduation unless this statement has been received by the GSBS main office by the specified deadline. The deadline to file the intent to graduate is posted on the GSBS website under the academic calendar.

Any candidate who fails to graduate at the expected time is required to file a new statement of intent to graduate for any subsequent intended graduation date.

Grades: The GSBS uses a letter grade system from A to F. All grades are converted to points in computing grade point averages. Instructors may NOT choose to add a plus or a minus to the grade. Graduate credit is only given for courses completed with a grade of A, B, or C. No final grade assigned for a graduate-level course may be raised unless an error has been made. Substituting another course for one completed with a low grade is not permitted. Work completed at another graduate school is not transferrable to the GSBS programs.

Grading symbols I, W, and WF: The symbol I (incomplete) may be given by a faculty member when a student's work in a course has not been completed by the end of the semester due to causes beyond the student's control. It is not used as a substitute for an F. **Only the Office of the Registrar can enter a grade of I. The course director must provide a memo to the GSBS office specifying the reasons for the grade and the work remaining to be done.** The GSBS then forwards the memo to the registrar to enter the grade. If there is no action on the part of the student after one year, the I automatically becomes an F.

When a student officially withdraws from a course by the deadline set early in the term, a grade of W (withdrawal) is assigned. Any student who fails to attend a course without

an official withdrawal will receive an F in that course. The grade of W is not calculated in the GPA, whereas a grade of WF is.

A withdrawal after the deadline results in either a W or a WF (withdrawal/fail), depending on the instructor's assessment of the student's work in the course up to the time of the official withdrawal. In order for the student to withdraw from a course after the deadline for an automatic W the student is responsible for sending an email to the GSBS office stating his/her intent to withdraw from the course. Once the GSBS office receives this email, the GSBS office will request the course director the grade the student has at the moment of the withdrawal. Based on the current grade the student would receive either a W (if he/she withdraws with a passing grade at the time of withdrawal) or a WF (if withdrawing and failing the class). If the withdrawal occurs after the deadline for an automatic W, the student must provide the registrar's office with a completed grade change form with a grade of W or WF at the time of the official withdrawal.

Leave of absence: Any student who fails to register for three consecutive semesters (12 months) and who does not have an official leave of absence from study is subject to review for readmission by the standards in effect at the time of reconsideration. Official leave of absence, which is granted by the GSBS main office upon recommendation of the dean, may be granted only in cases of serious medical conditions or other exceptional reasons. Normally, leaves of absence do not exceed one year. Leaves of absence may not extend the maximum time allowed for completion of the degree.

English language proficiency: A student found deficient in English may be required to satisfactorily complete certain English language courses (without graduate credit) before being considered for candidacy for a graduate degree.

Students' responsibilities: Every student is expected to become thoroughly familiar with academic guidelines, GSBS regulations, and degree requirements. Failure to follow the regulations and requirements almost inevitably results in complications for which the GSBS cannot assume responsibility.

To facilitate communications, the GSBS communicates exclusively through the student's assigned TTUHSC El Paso email account (i.e., first.last@ttuhsc.edu). It is the student's responsibility to check this account for important information and notifications.

A number of GSBS courses require a laptop; therefore, it is strongly recommended that all incoming students contact IT's Academic Services unit to ensure their laptops are up-to-date. Visit Academic Services for more information.

Scholarships: The GSBS seeks to continually recruit and retain the best quality students. In support of that goal, the GSBS offers scholarships to master's students. In order to maintain the scholarship, master students must maintain a 3.0 GPA or better per

semester. Failure to maintain a 3.0 GPA or higher in each semester will result in losing the scholarship for the succeeding semester.

Transfer credit: Work completed at another graduate school is not transferred to the GSBS programs.

Graduate credit is not granted for courses taken by correspondence.

Waiving Requirements: There is no automatic waiving of requirements at the GSBS.

Tutoring: Group and one-on-one tutoring is available. It is the responsibility of the student to contact the course director and faculty when tutoring is needed.

Master's Degree and Post-Baccalaureate Certificate

Prerequisites: A substantial body of relevant undergraduate work and considerable background knowledge are essential for graduate study. Therefore, students whose undergraduate programs are considered deficient in breadth may be required to complete additional preparatory work without degree credit. Such undergraduate “leveling” courses must be completed with a grade of B or better.

Master's program: The master's program is comprised of 36 semester hours of graduate work.

Post-baccalaureate certificate program: The post-baccalaureate certificate program is comprised of 18 semester hours of graduate work.

Official degree plan: After the first semester of enrollment (as soon as 9 to 12 semester hours of the work listed in the degree plan have been completed), the student assisted by the GSBS office should submit a degree plan. Delay in submission of the degree plan may result in postponement of graduation eligibility.

Once a student receives an approved copy of his/her official degree plan from the GSBS office, he/she is expected to follow the plan as the basis for all subsequent enrollments. Course substitutions are not permitted at the GSBS.

Approval of the degree plan does not, however, constitute admission to candidacy for a master's degree or certificate. It merely signifies that the proposed plan is acceptable if the student satisfies all of the regulations of the GSBS and all of the requirements tied to the degree plan.

A student becomes a candidate to graduate as soon as all of the following requirements have been met:

- All conditions for admission to the program have been met, including the submission of the degree plan form.
- All hours of required graduate work has been completed.
- A cumulative grade point average (GPA) of 3.0 or better has been maintained in all official program courses.
- Work to date is acceptable to the faculty concerned, as attested by their approval of the application for admission to candidacy.
- The entire degree plan conforms to the general requirements of the GSBS and the requirements of the particular program.

Final written report: While master students are not required to present a research thesis, the master program does require submission of a final written report on the outcome of the student's research project. (Only applies to the Master program).

Time limit: Students seeking advanced degrees are expected to graduate within a specified period of time. GSBS students whose graduate study is interrupted by military service are granted an extension for the period of their military duty (not to exceed five years). Per reporting guidelines established by the Texas Higher Education Coordinating Board (THECB), students seeking master's degrees are expected to graduate within five years.

Course Listings

Reading catalog course descriptions: Courses are listed by program. Not all courses listed in this catalog are offered every year. The university reserves the right to cancel any scheduled course or withdraw any program from the list of offerings when the best interests of the institution require such action.

Example course description:

GSBE 5101 — Responsible Conduct of Research (1:1:0): This course addresses the regulatory and ethical environment of today's biomedical research, as well as topics such as authorship and data management. (F)

Subject prefix: Indicates the course subject (GSBE = Graduate School of Biomedical Sciences El Paso)

First digit in course number: Indicates the academic level of the course; graduate standing is a prerequisite for enrollment in any course within the 5000 series or above, as the series is intended only for graduate students. Although graduate students occasionally enroll in undergraduate courses to balance deficiencies in their prerequisite coursework, any coursework credited toward a graduate degree must, except in rare instances and with prior approval from the GSBS dean, be of graduate level (5000 series or above).

Second digit in course number: Indicates the semester hour credit value of the course; for example, GSBE 5101 is a graduate-level course with one semester hour of credit.

Last two digits of course number: The distinguishing numbers of the course

Numbers in parentheses (1:1:0): The first number denotes the total credit hour value of the course, the second number represents lecture hours, and the third number represents lab hours. When the letter V precedes the numbers (e.g., V1-6), this indicates that the class is a variable credit course. Such courses are ordinarily research courses and permit enrollment for any number of hours, up to the limit indicated by the second number in parentheses.

Prerequisites: Some courses have specific prerequisites that must be met before a student is eligible to enroll.

Instructional method: Information in parenthesis after the course description describes the course instructional method, defined as:

- (F) Traditional, face-to-face course
- (H) Hybrid course with a combination of face-to-face and significant web-based instruction
- (O) Online course with most, if not all, web-based instruction
- (IVC) A course in which synchronous instruction is delivered via two-way transmission between an instructor and student who are not in the same physical location

More than one instructional method (e.g., F/IVC) indicates that the instructional method varies by course section.

Grading Policies

Introduction: The responsibility for evaluation of students rests with the faculty of the GSBS. Faculty have an obligation to the students, to the school, and to society to award passing grades only to those students who have demonstrated mastery of the course material. In addition to evaluation of students' knowledge and skills, the faculty has the obligation to determine whether students' behavior or conduct is suitable to represent the scientific community. It is inappropriate to allow a student to progress or graduate when unacceptable behavior or unprofessional conduct such as cheating or plagiarism. Refer to the GSBS student handbook for further information regarding unacceptable and unprofessional conduct.

Every attempt will be made to apply the principles of fairness and due process when considering the actions of the faculty or administration that might adversely affect the students. Comments, questions, and concerns should be directed to the Office of Student Affairs.

Students Covered by This Policy: These grading policies apply to students enrolled in the courses necessary to complete the requirements for the Master of Science in Biomedical Sciences and the Post-Baccalaureate Certificate at the GSBS. These policies do not cover the course work done for the other degree programs in which the student may be enrolled.

Responsibilities for Monitoring of Student Progress: The associate dean for the Office of Student Affairs, in conjunction with the dean of the GSBS, are responsible for monitoring the progress of GSBS students during their course of study in order to provide or refer students to the appropriate academic or personal counseling services, if applicable.

The Office of Student Affairs will provide staff support to the GSBS as requested. The associate dean for student affairs serves as advocate for due process for students.

Responsibilities of the Dean: The dean, as the chief academic officer, has the power to make final decisions in actions taken concerning students. During a student hearing procedure, the decision of the dean regarding the hearing committee's findings and recommendations is final.

Review of Coursework: The GSBS uses a letter grade system from A to F. Graduate credit is only given for courses completed with a grade of A, B, or C. Please consult the individual course syllabus for specific grading policies for each course.

Student progress will be reviewed by the dean and/or associate academic dean by at least the end of each semester in the context of all course work, student's professionalism, evidence of progressive improvement and personal circumstances.

A semester review will occur in January of each year. The dean and/or associate academic dean will consider all students after completion of the fall semester.

If a student is considered "at risk" they will be placed on academic probation. (See academic probation and dismissal section in this catalog and/or the GSBS Student Handbook.) A proposed learning plan will be devised in order to strengthen identified deficiencies. It is the responsibility of the student to follow the learning plan and to follow up with the dean and/or associate academic dean regarding progress.

Definition of "At Risk": If a student has incomplete, or missing courses. If the course director or faculty identifies the student at risk based on poor performance on given assignments or low test scores. Also, if there is professionalism concern in regards to the student's behavior.

Remediation is recommended by the course director and agreed on by the dean. However, students may be dismissed without academic watch or warning ever being designated. The dean and/or associate academic dean may also choose to remove "Good Standing" as a disciplinary action. Remedial work will not be counted as elective time in satisfying the conditions for graduation.

Transcript Notation: When a student receives a final failing grade in a course and it is not required for the student to repeat the course, then a grade of "F" (Fail) will be entered on the transcript.

If a student decides to withdraw from a course after the last day to drop a class or withdraw from the university the student needs to send an email to the GSBS office stating his/her intent to drop the course. Once the GSBS office receives the student's email, the GSBS office will notify the course director and ask him/her for the grade the student currently has in the course.

Based on the current grade, the student will receive either a W (if he/she withdraws with a passing grade at the time of withdrawal) or a WF (if withdrawing and failing the class).

Students who receive a grade of C or below in core courses are required to repeat the course. Students who receive a grade of C or below in two or more core courses are subject to dismissal.

The GSBS uses a letter grade system from A to F. All grades are converted to points in computing grade point averages. Instructors may NOT choose to add a plus or a minus to the grade. Graduate credit is only given for courses completed with a grade of A and B.

Note: Students are responsible for checking and following the academic calendar.

Documentation of Student Academic Performance: All grades will be recorded in WebRaider and will be available in the student's electronic portfolio. The TTUHSC El Paso Office of the Registrar maintains the official transcript of all students.

Graduation Policies: Normal progression through the GSBS curriculum requires that a student demonstrates a consistently satisfactory level of performance and professional behavior. Students will be expected to complete the curriculum within two years of the initial date of matriculation.

The curriculum may be extended due to a leave of absence or academic difficulty requiring repetition of an academic year as per this policy. However, inability to complete the curriculum in two years and/or the entire curriculum within five years will result in dismissal. For more information regarding graduation requirements refer to the General Information section of this catalog.

General Issues: Progress is not bound by categorical or arithmetic assessment of student performance but rather reviewed based on each student in the context of his/her academic achievement and any other circumstances that may influence performance. If a student exhibits conduct or behavior inconsistent with professionalism, a grade of F may be given.

Such conduct or behavior that occurs beyond the boundaries of a class or rotation may also be considered. In that case, the student will be referred for disposition of the case under the Code of Professional and Academic Conduct in the TTUHSC El Paso Student Affairs Handbook.

Final grades will be reviewed at the end of each semester. Students who receive a grade of F may meet with the course director to discuss their academic performance and possible actions. Students who receive a grade of C or below in core courses are required to repeat the course. Students who are required to repeat a core course(s) may not take courses from the next academic year during the period of repetition.

Challenging Student Records or Grades: Students have the right to challenge records, grades, and information directly relating to them. A student who wishes to appeal a grade must file a formal, written grade appeal within five business days of the beginning of the next semester.

A grade can be formally appealed only when there is demonstrable evidence that prejudice, or arbitrary or capricious action on the part of the instructor has influenced the grade. The burden of proof that such an unfair influence has affected a grade rests with the student who appeals the grade.

For further information, please refer to the GSBS Student Handbook.

Core Curriculum

Overview: All biomedical science fields recognize that advanced scientific knowledge is the foundation for both basic and translational research. To that end, full-time research is preceded by a curriculum that introduces scientific facts and provides opportunities for the development of critical thinking, synthesis of information, development of factual knowledge, and the ability to read and comprehend original literature.

Curriculum design and courses: Core curriculum courses are taken during the first and second semesters of the first year. Students are also required to complete a course in ethics (GSBS 5101, Responsible Conduct of Research) in the second semester.

Master's Degree Program Curriculum:

FIRST-YEAR CURRICULUM

FALL SEMESTER

GSBE 5104 — Biomedical Sciences Seminar (1:1:0): This course offers presentations, journal articles, and related material in biomedical sciences presented by faculty and special guests for group discussion. (F)

GSBE 5201 — Core IV: Laboratory Methods in Biomedical Sciences I (2:2:0): This course introduces first-year graduate students to the fundamental principles and techniques in basic science research. (F)

GSBE 5301 — Core I: Biochemistry (3:3:0): This course teaches structure, biosynthesis, and functions of the major classes of organic compounds with particular reference to organic molecules and their relationship to polymers, such as carbohydrates, lipids, proteins, and nucleic acids. (F)

GSBE 5302 — Core II: Cell Biology (3:3:0): This course teaches the structural details and molecular functions of the different parts of the cell. The

course also deals with the signal transduction processes and cellular functions required for cell growth and death. (F)

SPRING SEMESTER

GSBE 5101 — Responsible Conduct of Research (1:1:0): This course addresses the regulatory and ethical environment of today's biomedical research, as well as topics such as authorship and data management. (F)

GSBE 5102 — Laboratory Methods in Biomedical Sciences II (1:1:0): This course provides an integrated approach to modern biochemical techniques in biochemistry, cell and molecular biology, and genetics, including RNA interference and recombinant DNA techniques. (F)

GSBE 5104 — Biomedical Sciences Seminar (1:1:0): Students are required to attend all seminars sponsored by the biomedical studies program. Students who wish to deviate from the yearly seminar requirement must obtain approval from the graduate program committee. (F)

GSBE 5303 — Core III: Genes and Function (3:3:0): This course teaches the principles of molecular genetics. The main topics covered in this course include gene structure and function at the molecular level, regulation of gene expression, organization of genetic information in prokaryotes and eukaryotes, genetic rearrangements, and genetic engineering. (F)

GSBE 5310 — Introduction to Statistical Methods in Biomedical Sciences (3:3:0): This course introduces the basic concepts and methods for presenting and analyzing biomedical data. Topics include concepts of estimation and testing, experiment design, an introduction to randomized clinical trials, sample size and power calculation, curve fitting, ROC analysis, and statistics for genetic data. (F)

SECOND-YEAR CURRICULUM

FALL SEMESTER

GSBE 5104 — Biomedical Sciences Seminar (1:1:0): Students are required to attend all seminars sponsored by the biomedical studies program. Students who wish to deviate from the yearly seminar requirement must obtain approval from the graduate program committee. (F)

GSBE 5220 — Cancer Biology and Therapeutics (2:2:0): Students in this course will emerge with an advanced understanding of the molecular and

cellular basis of cancer. The principles of cancer biology — from the origin of cancer to therapeutic interventions — are addressed. (F)

GSBE 5222 — Advanced Human Genetics (2:2:0): This course covers, in detail, population genetics, cytogenetics, molecular biology, and biochemistry as they relate to human heredity and genetic disorders. It includes discussion of current research literature. (F)

GSBE 5224 — Cellular and Molecular Neuroscience (2:2:0): This course addresses molecular mechanisms of neuro-degeneration associated with neurodegenerative disorders, including spinal muscular atrophy, Parkinson's disease, Alzheimer's disease, Amyotrophic Lateral Sclerosis and Huntington's disease. The course consists of lectures and critical discussions of recent research papers.

GSBE 5640 — Core V: Introduction to Biomedical Research (laboratory rotations) (6:0:12): This course offers a hands-on introduction to the laboratories in which students may wish to conduct their thesis or non-thesis research. (F)

SPRING SEMESTER

GSBE 5104 — Biomedical Sciences Seminar (1:1:0): Students are required to attend all seminars sponsored by the biomedical studies program. Students who wish to deviate from the yearly seminar requirement must obtain approval from the graduate program committee. (F)

GSBE 5221 — Microbial Genetics (2:2:0): This course covers current techniques in genetic analysis, molecular biology, and gene regulation in microorganisms, with an emphasis on bacteria and bacteriophages. (F)

GSBE 5223 — Molecular Nutrition, Diabetes, and Epigenetics (2:2:0): This course will teach Pathogenesis of diabetes, Genetic variants and risk of diabetes and obesity with Breast Cancer, Molecular basis of Diet supplementation, Insulin resistance, Diet-gene interactions in the development of diabetes, Parental nutrition and Epigenetics. (F)

GSBE 5225 — Immunology (2:2:0): This course teaches basic and advanced concepts in immunology, including a survey of immunology as a host response to foreign agents, the nature of antigens and antibodies, effector and memory T cell responses, innate and adaptive immunity to microbial infections, allergic reactions, and tumor immunology. (F)

GSBE 7000 — Research in Biomedical Studies (V1-9): In this course, students engage in full-time laboratory research in a TTUHSC El Paso laboratory, under the direct supervision of a graduate faculty member. Emphasis is

placed on experimental methods and independent research on projects related to biomedical studies. After a student is well-established in his/her research, additional rotations may be done to gain expertise in techniques specific to the student's research (if not available in the faculty advisor's laboratory). The course is repeatable if different methods are covered for each registration. (F)

Post-Baccalaureate Certificate Program curriculum:

FALL SEMESTER

GSBE 5104 — Biomedical Sciences Seminar (1:1:0): This course offers presentations, journal articles, and related material in biomedical sciences presented by faculty and special guests for group discussion. (F)

GSBE 5201 — Core IV: Laboratory Methods in Biomedical Sciences I (2:2:0): This course introduces first-year graduate students to the fundamental principles and techniques in basic science research. (F)

GSBE 5301 — Core I: Biochemistry (3:3:0): This course teaches structure, biosynthesis, and functions of the major classes of organic compounds with particular reference to organic molecules and their relationship to polymers, such as carbohydrates, lipids, proteins, and nucleic acids. (F)

GSBE 5302 — Core II: Cell Biology (3:3:0): This course teaches the structural details and molecular functions of the different parts of the cell. The course also deals with the signal transduction processes and cellular functions required for cell growth and death. (F)

SPRING SEMESTER

GSBE 5101 — Responsible Conduct of Research (1:1:0): This course addresses the regulatory and ethical environment of today's biomedical research, as well as topics such as authorship and data management. (F)

GSBE 5102 — Laboratory Methods in Biomedical Sciences II (1:1:0): This course provides an integrated approach to modern biochemical techniques in biochemistry, cell and molecular biology, and genetics, including RNA interference and recombinant DNA techniques. (F)

GSBE 5104 — Biomedical Sciences Seminar (1:1:0): Students are required to attend all seminars sponsored by the biomedical studies program.

Students who wish to deviate from the yearly seminar requirement must obtain approval from the graduate program committee. (F)

GSBE 5303 — Core III: Genes and Function (3:3:0): This course teaches the principles of molecular genetics. The main topics covered in this course include gene structure and function at the molecular level, regulation of gene expression, organization of genetic information in prokaryotes and eukaryotes, genetic rearrangements, and genetic engineering. (F)

GSBE 5310 — Introduction to Statistical Methods in Biomedical Sciences (3:3:0): This course introduces the basic concepts and methods for presenting and analyzing biomedical data. Topics include concepts of estimation and testing, experiment design, an introduction to randomized clinical trials, sample size and power calculation, curve fitting, ROC analysis, and statistics for genetic data. (F)

Final Written Research Report

Purpose: To define the requirements for the final research report

Research report: The master's research report represents independent student work, conducted under the supervision of the mentor, and is expected to be written clearly and concisely. Students must earn a grade of B or better on the research report to qualify for graduation. A copy of the research report must be submitted to the GSBS main office a week before the end of the semester.

Enrollment in GSBE 7000 — Research in Biomedical Studies is required for the master's research report.

Laboratory Rotations

Laboratory rotations in the fall semester of the second year curriculum are incorporated into GSBE 5640 — Core V: Introduction to Biomedical Research and GSBE 7000 — Core VI: Research in Biomedical Studies. The goal of the laboratory rotations is to formally introduce students to research and to determine if the student has an interest in a particular research area. Students should consider the potential for laboratory rotations and the possibility of a faculty member becoming a mentor at this time. Laboratory

rotations last the entire fall and spring semesters of the second year. The faculty member involved submits a written evaluation for each rotation that must be reviewed with the student. The signed form is included in the student's program file.

Assessment of Graduate Student Progress

The graduate student checklist is the main tool for assessing student progress through the degree program. It is the student's responsibility to ensure that all appropriate forms are signed and filed with the graduate program coordinator by the posted deadlines. Student progress will be reviewed by the dean and/or associate academic dean at least by the end of each semester in the context of all course work, student's professionalism, evidence of progressive improvement and personal circumstances. In addition to program requirements, students are expected to maintain above average ratings in all required assessment criteria. Failure to maintain these standards may result in academic probation or dismissed from the program.

TTUHSC El Paso Title IX

The University does not tolerate discrimination or harassment based on or related to sex, race, national origin, religion, age, disability, protected veteran status, genetic information, or other protected categories, classes, or characteristics. While sexual orientation and gender identity are not explicitly protected categories under state or federal law, it is the University's policy not to discriminate in employment, admission, or use of programs, activities, facilities, or services on these bases.

The University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex and other types of Sexual Misconduct.

Questions regarding Title IX may be referred as follows:

CONTACT	PHONE	ADDRESS	EMAIL
TTUHSC El Paso Title IX Coordinator Rebecca Salcido Executive Director	915-215-4140	TTUHSC El Paso Human Resources Dept. Administrative Support Building 200 N. Concepcion El Paso, TX 79905	rebecca.salcido@ttuhsc.edu
Office of Civil Rights (OCR)	Customer Service Hotline 1-800-421-3481		www.ed.gov/ocr

For reports or notices of discrimination and/or harassment against a student:

CONTACT	PHONE	ADDRESS	EMAIL
TTUHSC El Paso Title IX Deputy Coordinator for Students Kathryn V. Horn, M.D. Assistant Vice President for Student Services	915-215-4786	TTUHSC El Paso Office of Student Services 5001 El Paso Drive Room 2140E El Paso, TX 79905	kathryn.horn@ttuhsc.edu

For reports or notices of discrimination and/or harassment by or against employees:

CONTACT	PHONE	ADDRESS	EMAIL
TTUHSC El Paso Title IX Deputy Coordinator for Employees Charlotte Bingham Managing Director of the Office of Equal Employment Opportunity	806-742-3627	TTU Office of Equal Employment Opportunity TTU Administration Building Room 210 Box 1073 Lubbock, TX 79409	eeo@ttu.edu