Graduate College of Biomedical Sciences

Master of Science in Medical Sciences (MSMS)

2014/2015 Catalog
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Graduate College of Biomedical Sciences

Master of Science in Medical Sciences

Accreditation

Western University of Health Sciences is accredited by the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges (WASC) - 985 Atlantic Venue, Suite 100. Alameda, CA 94570. (510) 748-9001. Approval of the Master of Science in Medical Sciences by the Western Association of Schools and Colleges occurred on June 18, 2010.

Program Goals

The Master of Science in Medical Sciences in the Graduate College of Biomedical Sciences (GCBS) will equip graduates with the critical evaluation skills necessary to implement evidence-based clinical practice and prepare qualified pre-health professional students, who have obtained a baccalaureate degree, for successful application to professional programs, both external and internal, in a unique, rigorous, and inter-professional environment.

Program Overview

A minimum of 45.50 semester credit hours is required for completion of the Master of Science in Medical Sciences program. This includes didactic study, clinical shadowing, research, small group case-based learning, and laboratory work leading to a thesis. The program emphasizes integration of biomedical sciences and research-based knowledge in clinical decision making. Courses, laboratory experiences, and research will serve to provide students with the skills required to integrate scientific knowledge, literature evaluation and clinical decision making, and will culminate in a capstone course, assessed by examination and final project.

Program Faculty

Program faculty have appointments in the Colleges of Biomedical Sciences, Osteopathic Medicine of the Pacific, Veterinary Medicine, Pharmacy, Dental Medicine, and College of Allied Health Professions, as well as accredited outside institutions of postsecondary education. Their areas of research emphasis include molecular biology, microbiology, biochemistry, immunology, neuroscience, anatomy, physiology and education.

Application and Admissions Requirements

Applicants must possess a Bachelor of Science degree with strong science component. The minimum criteria to receive consideration for admission are listed below. Meeting these criteria, however, does not guarantee admission into the program.

- A completed Western University of Health Sciences Graduate Application form (including all supplemental information and secondary application material).
- Official transcripts of all coursework taken.
- Official test scores taken within the last five (5) years for one or more of the following:
The general aptitude portion (verbal, quantitative, and analytical) of the Graduate Record Examination (GRE)
- Medical College Admissions Test (MCAT) for pre-medical and pre-podiatry students
- Dental Admission Test (DAT) for pre-dental students
- Optometry Admissions Test (OAT) for pre-optometry students

- Three letters of reference from individuals familiar with the applicant’s scholarship, appropriateness for a health care profession, and research potential. One letter needs to be from a science faculty member.

**Admission Prerequisites**
- A bachelor’s degree with a strong science component
- At least a 2.5 overall grade point average
- At least a 2.75 GPA overall in all prerequisite science courses
- Completion of the following undergraduate courses with a grade of C- or better:
  - General Chemistry with laboratory (8 semester units)
  - Organic Chemistry with laboratory (8 semester units)
  - Introductory Biology with laboratory (8 semester units)
  - General Physics with laboratory (8 semester units)
  - Biochemistry
  - English (6 semester units)
  - Behavioral Sciences (6 semester units)
- Upper division courses in molecular and cellular biology, genetics, immunology, anatomy, physiology, and biochemistry are strongly preferred.

Besides a strong academic record, we are looking to accept students who demonstrate the ability to integrate and disseminate information, who have outstanding communication and interpersonal skills, and who demonstrate caring and empathy towards other people and experimental animals.
Application Process

Applications and detailed information on how to apply can be found at:
http://prospective.westernu.edu/medical-sciences/apply-4/.

All applicants must submit the following directly to WesternU Admissions Office:

- WesternU- Master of Science in Medical Sciences online application
- Non-refundable $50.00 application fee
- Official GRE/MCAT/DAT/OAT (depending on professional school goal)
- TOEFL scores (for graduates of foreign universities)
- A personal statement
- A current résumé
- 3 letters of reference (on letter must be from a science professor)
- Official college transcripts from all institutions attended

Application Deadline

Applications must be received (including all supporting application materials) no later than February 1st of the year in which the applicant wishes to matriculate. Completed applications that arrive before the deadline will be considered on a rolling basis. If the class is not filled by February 1st, the deadline may be extended to March 1st.

Applicants with Foreign Coursework

Applicants who wish to use coursework completed outside the United States must submit their transcripts for evaluation to a Western University of Health Sciences Approved Service at the candidate's expense. A course-by-course evaluation is required and all coursework must be designated as undergraduate, graduate or professional. Western University only honors evaluations from one of the above services. The official evaluation must be included with the supplemental application packet.

International Students

International students and any other applicants who are not U.S. citizens and who are living in the U.S. should be prepared to provide proof of legal U.S. residency at the time of interview. Proof of legal U.S. residency is required prior to any offer of acceptance. For more detailed information, please visit our web page for International Students.

Transfer Credit

Ordinarily, transfer credit will not be accepted. Under extraordinary circumstances, the faculty of the Master of Science in Medical Sciences program may allow up to 9 credit hours to transfer if the coursework has been completed within an accredited graduate or professional program and there is compelling reason provided for the transfer. In order to have a course transferred the student must provide the catalog description and course syllabus in order that the appropriate faculty can approve the course’s subject equivalency. Once these materials have been submitted to the Director, they will be
reviewed ordinarily within 10 working days, by appropriate faculty. A decision about equivalency and transferability will be made at that point. The Program Director will notify the student of the decision by email. Under no circumstances will credit be granted for coursework taken while enrolled as an undergraduate student. Transferred course credit will not reduce the MSMS tuition or fees.

**Registration**

All MSMS students are required to register by the registration deadlines specified by the University Registrar. Registration dates are posted at: [http://www.westernu.edu/registrar/registrar-online-information](http://www.westernu.edu/registrar/registrar-online-information). Failure to register by the deadline may be grounds for administrative withdrawal. All students registering after the posted deadline will be assessed a $30.00 per business day late fee.

Full tuition and fees and all prior debts must be paid in full on or by posted deadlines each academic year. Matriculation is subject to the satisfactory completion of all academic requirements and payment of all outstanding debts to the University. The receipt of a final transcript(s) from all colleges/universities attended is required for incoming students. Also, all students must show proof of current health insurance coverage by the deadlines provided by the University Registrar. This coverage must be maintained or in effect throughout the academic year. If there is no proof of current coverage, students will be automatically enrolled in the school sponsored insurance plan.

**Withdrawing from Courses**

Students may not drop individual courses within the curriculum. If a student wishes to drop from the program, he/she must complete the appropriate Withdrawal or Leave of Absence forms. In such circumstances, a “W” will be assigned for the course unless the student has already completed 90% of the course. Please note that all ‘W’ grades received from previous attempts will remain on the student’s transcript. Please see Western University Tuition Refund Policy for additional information.

**Full-time/Part-Time Status**

A graduate student at Western University of Health Sciences in the Master of Science in Medical Sciences program must enroll in at least 8 semester hours per term to be considered full-time. To be considered full-time when enrolled in fewer than six hours, the student must be registered in all remaining courses necessary for completion of the graduation requirements for the degree.

**Time Limits**

The Master of Science in Medical Sciences program is designed to be completed in one (1) year of full-time study. The requirements for the degree must be fulfilled within two (2) years from the date of matriculation to the program.

**Tuition and Fees**

By action of the Board of Trustees, MSMS tuition and fees for the 2014-2015 academic year (subject to change) are as follows:

| Annual Tuition | $23,770.00 |
### Other Fees and Expenses

- $30.00 Registration Late Fee (per business day)
- $450.00 Remediation Fee
- $350.00 Graduation Fee
- $470.00 Annual Parking Permit (Auto)
- $77.00 Clicker Responder
- TBD Textbooks
- $75.00 Capstone Course Poster Printing
- $25.00 Parking Permit Replacement Fee
- $40.00 Locker Key Replacement Charge
- $10.00 Official Transcript (Each)
- $21.00 Rush Transcript, First Class Mail (Each)
- $25.00 Rush Transcript, Federal Express (Each)
- $10.00 Student ID Replacement Fee
- TBD Breakage Fee (Replacement Cost)

### Financial Aid and Program Scholarships

A graduate education is more important than ever today, yet paying for one can be a challenge. The key to obtaining financial aid is to start the process early. Applicants should first look into grants, scholarships and other student aids, which do not require repayment. Military and veteran benefits are other avenues to finance your education. Educational loans, whether from federal or private sources, can also help you achieve your goals. Please visit our [Prospective Student website](#) for further information. The application process for the Dean of the Graduate of Biomedical Sciences Scholarship Program opens in October of each academic year. Those students who fill out applications and show both financial need and academic merit may be eligible for a partial tuition scholarship.

### Graduate College of Biomedical Sciences Dean's Scholarship

**Eligibility**

Applicants must meet all of the following criteria:

- Must be a Permanent Resident of the United States
- Must be enrolled in the MSMS program
- Must have at least a cumulative undergraduate college grade point average of 2.50 on a 4-point unweighted scale

**Description of Funds**

The recipient will receive a scholarship of approximately $2,000 to $15,000 to be applied to tuition expenses. Funds are provided by Western University of the Health Sciences and the Graduate College of Biomedical Sciences. Payments are credited to the student’s account, a third of the scholarship for each semester of the program ending in spring of the year the student is scheduled to graduate.

**Responsibilities of Recipients**

The Recipient must be actively enrolled full-time as in the MSMS program and for the entire academic year without interruption, barring illness, emergency, or military service.
**Selection Process**

Students must complete a scholarship application which is made available either from the student’s initial supplemental application materials or via a questionnaire completed after matriculation. The Scholarship Committee will consider the following characteristics to determine the scholarship eligibility and amount:

- Disadvantaged status
- Financial need
- Academic achievement and records
- School and community activities and leadership

Deadlines for Dean’s Scholarship Applications will be announced after October 1st. A student’s level of need is determined by a careful evaluation of detailed financial information provided by the applicant and the applicant’s parents. If applicant’s parents are separated or divorced, the financial information is required from both parents (including income and assets of any possible new spouses, if they have remarried.) All financial data is documented with official copies of U.S. individual income tax returns of the applicant and the applicant’s parents. **The Dean’s Scholarship is nonrenewable.** All decisions of the selection committee are final and are not subject to appeal.

**Academic Requirements**

**Attendance and Participation**

Students will come prepared and adhere to established times for classes, assessments, laboratories, rotations and meetings. Students are **required** at all scheduled instructional periods. Absence from instructional periods for any reason does not relieve them from responsibility for the material covered during the periods missed. In order to receive an excused absence for exams and assignment, it must be due to medical and emergency grounds. Students will provide to the Director of the Master of Science in Medical Sciences program no later than the day of the assignment or exam, a physician’s note or other document that may be required. Frequent absences or tardies will be viewed as violations of the Standards of Academic and Professional Conduct, and are grounds for placing students on academic probation or academic suspension.

**Vacation and Emergencies**

Students receive three weeks’ vacation each year; two weeks over the Winter Break and one week for Spring Break. Students may not expect to take more time than this, may not leave early or return late from the break. Vacations are not provided during academic semesters.

Under special circumstances (i.e. interviews), a student may arrange a brief 1-3 days off at the discretion of the Director and Dean. It is the Dean’s and program director prerogative whether to grant the time off and it is not guaranteed. Students should not enter the program with the expectation of taking time off for other pursuits (i.e. leaving the country, hobbies, etc.) Emergencies, including medical problems or serious personal/family issues, which result in less than 15 academic days (3 calendar weeks) away from campus, may be granted upon approval by the program director, in conjunction with the Graduate College of Biomedical Sciences Dean. Any missed course material is the responsibility of
the student, and students may be required to complete alternative assignments, at the discretion of course faculty.

Students with emergencies resulting in more than 30 academic days (4 calendar weeks) away from campus must apply in writing for a Leave of Absence to the Dean or his/her designee. Please see the Western University Catalog’s “General Academic Policies and Procedures” for more specific information on a Leave of Absence.

**Program Director and Academic Advisor Assignment & Duties**

Enrolled students will be assigned an Academic Advisor during the fall. The Master of Science in Medical Sciences Program Director will act as academic progress and pre-professional advisor to all enrolled students, and as such advises enrolled Master of Science in Medical Sciences students on graduate program and professional school applications and provides students with feedback on essays, choice of schools, timing of application and taking of MCAT, DAT and other standardized exams and pre-professional activities, including interviewing skills and shadowing. The Program Director will conduct workshops and programs for Master of Science in Medical Sciences students on topics such as Interviewing, Writing a Personal Statement, Application Time Lines, Securing Letters of Evaluation, and Standardized Test Preparation. The Program Director coordinates the information gathering and authoring of committee letters of recommendation, for students whose pre-professional applications require them.

**Capstone Project Requirements**

The capstone will be a combined oral and written project, utilizing appropriate presentation modalities.

Master of Science in Medical Sciences candidates choose a topic for their capstone project based upon their own research, meta-analysis of existing literature data, policy analysis, or other appropriate topic chosen in consultation with the capstone course director no later than the 2nd week of spring semester.

The Master of Science in Medical Sciences candidates will prepare and present orally their findings assisted by either a poster or a PowerPoint presentation at a special Master of Science in Medical Sciences colloquium to members of the Graduate College and the University.

**Graduation**

A student will be recommended for the Master of Science in Medical Sciences degree provided he/she:

a. Is not on probation or suspension and has completed all prescribed academic requirements with a cumulative grade point average of above 2.50 and has no outstanding grade of “I,” “NCR,” or “U”. No more than two MSMS courses with an earned grade of ‘C’ may be counted towards MSMS graduation requirements.

b. Has demonstrated no serious deficiencies in ethical, professional, or personal conduct, as defined in University Catalog, “General Academic Policies and Procedures” section, which would make it inappropriate to award the degree of Master of Science in Medical Sciences.
c. Has complied with all the legal and financial requirements of the University as stated in the University Catalog.

d. Has attended in person and participated in the Commencement ceremony at which time the Master of Science in Medical Sciences degree is conferred. Unless special permission has been granted by the Dean, each student must participate in their respective commencement ceremony. Requests for excusal will only be granted for extenuating circumstances, such as a prior military commitment.

Students may participate in commencement activities provided they will complete all requirements of the program by December 31st of that calendar year. No student will receive his or her degree until the student has completed all requirements for graduation. Degrees will be dated as appropriate to completion date.

Academic Integrity

Complete confidence in the honor and integrity of the researcher and pre-health professions student is essential. Such confidence depends entirely on the exemplary behavior of the individual in his/her relations with colleagues, faculty, staff, and patients. Strict honesty as a personal way of life should be nurtured during the period of education for professional service. The student shall conduct all aspects of his/her life with honor and integrity. This includes accountability to oneself and to relationships with fellow students, future colleagues, faculty, and patients who come under the student’s care or contribute to his/her training and growth, and members of the general public. This applies to personal conduct that reflects on the student’s honesty and integrity in both academic and non-academic settings, whether or not involving a University sponsored activity. Upon accepting admission to the University and program, each student subscribes to and pledges complete observance to the Standards of Academic and Professional Conduct as outlined in the University Catalog for each academic program. A violation of these standards is an abuse of the trust placed in every student and could lead to suspension or dismissal.

Standards of Academic and Professional Conduct: GCBS Honor Code

Honesty and integrity are among the most valued traits of academic researchers and health care professionals. Each student is expected to assume personal responsibility for those traits. Academic dishonesty includes cheating, plagiarism, using unauthorized resources during examination(s), sabotaging other students and mentors research as well as and signing another person’s name to an attendance or examination document. Matters of academic dishonesty and professional misconduct will be handled consistently with the University’s guidelines for Hearings involving alleged violations of the standards of professional conduct as described in the University’s General Academic Policies and Procedures. Any individual who witnesses or becomes aware of a possible violation of the Honor Code is bound to report the incident. Staff or students must report the incident to a faculty member and faculty members must report the incident to the Dean, GCBS.

Upon receipt of an allegation of misconduct, the Dean, GCBS will either address the matter directly or will appoint an ad hoc committee of the Faculty and student(s) of the program to investigate the allegation and forward a recommendation on a course of appropriate action to the Dean, GCBS. Potential sanctions could include placing the student on probation; require the student to undertake specific remedial activities, suspension for a defined period of time, or dismissal from the program.
Decisions of the Dean in matters of conduct may be appealed following the procedure outlined in the Overview section of this Catalog.

**MSMS Professional Dress and Behavior**

Students are expected to dress and act appropriately at all times, including lecture, lab, and on/off campus events. Students are expected to follow all rules established by faculty and preceptors in the classroom, during clinical skills labs, at rotation sites, and during College-sponsored events. When requested, students should use professional dress, such as wearing their white coats. Students will maintain a professional attitude/demeanor at all times when communicating as a graduate student. Students will display a positive attitude when receiving constructive feedback.

**Respect**

Students will show respect to their fellow classmates, the staff, the faculty, and other colleagues. Students will formulate constructive evaluation of others’ performance and will communicate it in a professional manner. Students will use professional language at all times when communicating as a graduate student. Students will display sensitivity towards other cultures, races, religions, genders and sexual orientations. Students will display a positive attitude when receiving constructive feedback. Students will strive to resolve conflict in a respectful manner.

**Accountability**

Students will acknowledge their limitations and seek help from an appropriate source when their knowledge, skills, abilities, or judgment are inadequate for the academic or professional circumstance. Students will assume responsibility for their actions. Students will acknowledge academic priorities over professional and personal activities. Students will honor their commitments to others.

**Excellence**

Students will exhibit their best effort in all academic and professional activities and endeavors. Students will commit to continual self-assessment, development and lifelong learning. Students will consult with faculty when professional or personal activities conflict with academic responsibilities and give due consideration to their recommendations. Students will contribute to an environment conducive to learning.

**Standards of Academic Progress**

To be considered making satisfactory academic progress and to be considered in good academic standing all Master of Science in Medical Sciences Students:

- Should have an overall GPA of 2.50 or above.

- Will complete the coursework for degree in two semesters unless a leave of absence is granted or remediation of a course is required. If remediation is required, a student may have up to one additional semester to complete their degree and be considered to be making satisfactory academic progress.

- At the time of semester evaluation of each student by the Graduate College of Biomedical Sciences Student Progress Committee, if a student is found not to be meeting satisfactory academic progress either for GPA reasons, or time to degree limit is exceeded, the student will be placed on probation.
Student Performance Committee

The Graduate College of Biomedical Sciences Student Performance Committee is charged with the following responsibilities: (a) to review at the end of each term the academic achievement and comprehensive evidence of progress of all students who are pursuing the Master of Science in Medical Sciences (particular attention will be given to students in academic difficulty as their grades are made available to the Committee by the Registrar and/or course faculty); and (b) to receive reports from the College Dean regarding any student whose professional or personal conduct is deemed unsatisfactory. Appropriate professional and personal conduct is defined by the University’s and College’s codes of professional conduct (refer to Standards of Academic and Professional Conduct above).

Academic Probation

The Chair of the Student Performance Committee will automatically place students on academic probation under the following circumstances:

- A student earns a failing (“U”) grade in any course. The student will remain on academic probation until the course is satisfactorily remediated.

- A student's cumulative GPA is below 2.50 for Master of Science in Medical Sciences program at the end of any academic term.

- Failure to perform in a professional manner.

- Serious deficiencies in ethical or personal conduct.

The Dean of the college will notify the student in writing of the action. When a student has been placed on probation, the following outcomes will result:

- The student may not hold office in any University or College organization. Within 2 weeks of the date that the student receives notification of his/her academic probation, the student must meet with the following offices and fill out an Action Plan Form available from the Program Director:

  - The Learning Enhancement and Academic Development (LEAD) office staff to develop an academic action plan. The student must obtain a signature from the LEAD office documenting agreement on the action plan.

  - The student’s faculty advisor/program director to review the student’s proposed improvement plan. The student must obtain a signature from the faculty advisor/program director documenting the agreement on the action plan. The faculty advisor/program director will take a copy of the plan for the student’s file.
• In addition, students are encouraged to seek regular assistance from any University or College resource deemed necessary to improve his or her academic performance over the duration of probation.

• Students on academic probation will be given up to two academic terms to raise their cumulative GPA to the required standard of 2.5 for the Master of Science in Medical Sciences or above. Meeting the appropriate GPA requirements will result in the lifting of Academic Probation Status.

Financial Aid Warning Policy

If a student is not achieving satisfactory academic progress (SAP) they may be placed on “Financial Aid Warning” status for the next payment period and continue to receive Title IV aid for that period. Students who fail to make SAP by the end of that payment period lose Title IV aid eligibility.

It is the policy of the Financial Aid Office (FAO) that once a student has been placed on academic probation for not meeting SAP standards as defined by the college, the FAO will automatically place the student in a Financial Aid Warning status. During the next academic term if the student does not meet SAP standards and the college places the student on academic suspension the student will no longer be eligible for financial aid. If the student appeals the academic suspension and the appeal is approved, financial aid will be reinstated. If the student is directed to audit courses those courses may not be covered by financial aid.

Tutorial Assistance Program

A Tutorial Assistance Program (TAP) has been established to assist students experiencing academic difficulty. Students will be recommended for this program by a faculty advisor or professor. Students may self-identify to TAP to receive assistance. The tutors will be chosen on the recommendation of the faculty in each discipline. Group tutoring is the methodology most used by the TAP department. For assistance, contact the Learning Enhancement and Academic Development Office (LEAD).

Remediation

The educational objectives that underlie remedial teaching and evaluation should be the same as the educational objectives that underlie regular courses in the curriculum. GCBS MSMS students, who receive a “U” in a course or a cumulative GPA below a 2.50, will be reviewed by the Student Performance Committee. Where deemed appropriate, the Student Performance Committee, after consultation with the course instructor, system coordinator, and/or the Dean (or his/her designee) may recommend any one of the following options for remediation:

• Take a comprehensive examination.
• Take a series of exams.
• Repeat the course

The score/grade achieved by remediation will be the score/grade recorded. The grade achieved by remediation will be re-recorded on the transcript next to the original grade.
If a student is directed to repeat a course, the grade for repeated course will be recorded on the official transcript. Only the most recent grade received for a repeated course will be included in the student’s GPA calculation. Students will be charged full tuition for repeated coursework.

Recommendations regarding remediation will be made on an individual basis after considering all pertinent circumstances. The final decision will be made by the Dean of the Graduate College of Biomedical Sciences, based upon the recommendation of the Student Performance Committee. Course remediation by exam(s) will take place during the summer following the year in which the student failed the course. Remediation by repeating the course, system or rotation will take place at the time that it is offered during the following academic year. All summer remediation exams will take place no sooner than June 15th and no later than August 1st of the following summer after the student has failed a course. Students who require remediation but are unavailable on the designated examination date will not be allowed to progress in the curriculum and will be placed on academic suspension. The grade earned upon remediation of the course, either by exam(s) or repeating the course, will replace the original course grade.

A student who is required to remediate a course must be notified in writing by the Dean at least 15 working days prior to the remediation date, or within 15 working days after the close of the academic year in which the student is presently enrolled, whichever comes first. Notification must either be sent by Certified Mail or hand-delivered to the student and must be acknowledged with the signatures of the Dean (or his/her designee) and the student.

Only students who have failed a course, or otherwise earned a “U” will be allowed to remediate a course at no time will a student with a passing grade (C or better) be allowed to remediate a course.

Repeating a Course
Students will not generally be allowed to repeat any courses they have completed and passed (earned a grade of C or better). If, for some extenuating circumstance, the student feels it is necessary to do so, he/she must petition by memo or letter the Student Performance Committee, and include a memo/letter of support from the faculty member who teaches/coordinates the course they propose to retake. If the SPC recommends approval of the petition and the Dean of the College approves the petition, the student will be able to repeat a course. The student will be responsible for paying tuition for the repeated course on a per unit basis calculated from the MSMS annual tuition for the year the student is repeating the course. The grade for the repeated course will be recorded on the transcript and does not replace the original grade received for the course. Only the most recent grade received for a repeated course will be included in the student’s GPA calculation.

Academic Suspension
The Dean for Graduate College of Biomedical Sciences will automatically place students on academic suspension when a student does not achieve the required cumulative GPA for their program for two consecutive academic terms. If a student fails to meet the academic action plan agreed upon by the student, the LEAD office, and their faculty advisor/program director they will be put on Academic Suspension. The SPC committee, after consultation with all pertinent college parties (faculty advisor/program director and a LEAD office designee) must find that the student has not followed their action plan to be placed on Academic Suspension.

Students may also be placed on Academic Suspension if there is a period of non-enrollment caused by the need to repeat a failed course.
No student is eligible for Title IV, HEA programs if they are placed on Academic Suspension. Students on Academic Suspension are not registered as an active matriculant and should use this time to remediate for the deficiency for which the Academic Suspension was levied.

**Dismissal**

The University may require withdrawal at any time it deems necessary to safeguard its standards of scholarship, conduct, and orderly operation. A student will be permanently dismissed from the program if the student fails to accomplish course learning objectives and/or fails to achieve academic expectations even after granted the opportunity to repeat coursework. Any student permanently Dismissed from the program is not eligible for Title IV, HEA programs. A student will be permanently dismissed when:

- A student earns a failing grade ("U") in any course that the student has repeated
- A student earns more than two failing grades ("U") even after successfully remediating those two courses.
- A student fails to earn the program’s required cumulative GPA by the end of the first term of repeated coursework or no more than 2 semesters of enrollment following initial date academic probation takes place.
- A student currently repeating coursework due to sub-standard academic performance is found in violation of the College’s Standards for Professional Conduct at a level that merits course failure or repeating the course.
- Failure to perform in a professional manner.
- Serious deficiencies in ethical or personal conduct.

**Student Appeal Process**

At the conclusion of each academic term, the Student Performance Committee will review whether students have met the established criteria for progression in the curriculum. Recommendations by the Student Performance Committee for repeat of the academic year or dismissal from the program are advisory to the Dean of the Graduate College of Biomedical Sciences, who will make the decision.

In the event that the Student Performance Committee has made a preliminary determination to recommend an adverse action, such as dismissal or the repeat of an academic year, the student is offered an opportunity to meet in person with the Student Performance Committee, prior to the Committee forwarding its final recommendation to the Dean of the GCBS. At such time, the student may present any information relative to the preliminary recommendation. The student may also be accompanied by a representative for support; however, the representative may not be an attorney. The Student Performance Committee will have an opportunity to review the additional information, if presented, and will then make a final recommendation to the Dean.

In accordance with Western University policy, the Dean’s decision may be appealed by the student to the Provost of Western University of Health Sciences. The Provost may convene an advisory panel, and the decision of the Provost is final. (See Student Appeal Process in University Academic Policies section).
Evaluation and Grading

Western University of Health Sciences Institutional Learning Outcomes

Critical Thinking and Clinical Reasoning
WesternU students will identify and solve problems that require the integration of multiple contexts when applying patient care.

Diagnosis, Management & Prevention/Clinical Competence
WesternU students will demonstrate diagnostic and therapeutic skills and apply relevant information to patient care and practice, and to educate patients regarding prevention of common health problems.

Interpersonal and Effective Communication Skills
WesternU students will demonstrate effectively interpersonal skills that enable them to establish and maintain therapeutic relationships with patients and other members of the health care team.

Collaboration Skills
WesternU students will demonstrate collaboration with clients and with other health professionals to develop a plan of care to achieve patients’ positive health outcomes.

Ethical & Moral Decision Making Skills
WesternU students will demonstrate the highest quality of care, governed by ethical principles, integrity, honesty and compassion.

Humanistic, Caring and Compassionate Care
WesternU students will practice compassionate care.

Life Long Learning
WesternU students will engage in life-long, self-directed learning to validate continued competence in practice.

Using Evidence-Based Practice
WesternU students will utilize research and evidence-based practice and apply relevant findings to the care of patients.

Master of Science in Medical Sciences (MSMS) Program Learning Outcomes

Professionalism
MSMS students will exhibit appropriate behavior regarding comportment, dress, language, punctuality, responsibility and attitude during all activities.

Critical Thinking
MSMS students will develop an approach to learning and health care that incorporates judicious integration of systematic assessments of relevant clinical and scientific evidence.

Narrative Competence
MSMS students will construct accurate written and oral summaries of scientific information and patient histories with facility.
**Ethics and Humanism**

MSMS students will demonstrate knowledge and implementation of ethical principles in scientific conduct and patient care. Exhibit qualities of humanism.

**Subject Competence**

MSMS students will demonstrate knowledge of scientific principles and practice and implement self-evaluation and life-long learning.

**Grading Scale**

Final course grades are given based upon the traditional 4-point letter system, as follows:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Equivalent</th>
<th>GPA Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Outstanding</td>
<td>4.00</td>
</tr>
<tr>
<td>A-</td>
<td>Excellent</td>
<td>3.70</td>
</tr>
<tr>
<td>B+</td>
<td>Very Good</td>
<td>3.30</td>
</tr>
<tr>
<td>B</td>
<td>Good</td>
<td>3.00</td>
</tr>
<tr>
<td>B-</td>
<td>Above Average</td>
<td>2.70</td>
</tr>
<tr>
<td>C+</td>
<td>Satisfactory</td>
<td>2.30</td>
</tr>
<tr>
<td>C</td>
<td>Marginally Passing</td>
<td>2.00</td>
</tr>
<tr>
<td>U</td>
<td>Unsatisfactory</td>
<td>0.00</td>
</tr>
<tr>
<td>CR</td>
<td>Credit</td>
<td>N/A</td>
</tr>
<tr>
<td>NCR</td>
<td>No Credit</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**ADMINISTRATIVE GRADES**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Equivalent</th>
<th>GPA Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>AU</td>
<td>Audit</td>
<td>N/A</td>
</tr>
<tr>
<td>I</td>
<td>Incomplete</td>
<td>N/A</td>
</tr>
<tr>
<td>W</td>
<td>Withdrawal</td>
<td>N/A</td>
</tr>
<tr>
<td>M</td>
<td>Missing</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Incomplete**

An Incomplete grade "I" will only be assigned to students whose health and/or personal responsibilities prevent him or her from completing the requirements of the course. A student may remove an incomplete by completing course requirements within 6 weeks after the end of the semester when the course took place, or the final grade will be permanently recorded as a “U”. The instructor must certify any grade changes. The “I” grade will remain on the student’s transcript, along with the final grade assigned by the instructor.

**Grade Reports**

Official grades are turned in to the Registrar by the Graduate College of Biomedical Sciences, at which time the online student records system, BanWeb, is updated. Official grade reports and unofficial transcripts will be available on the BanWeb student records system throughout the academic year. No course grade will be changed unless the instructor certifies in writing that an error in computing or recording the grade has occurred or that the student has completed course requirements for an incomplete grade or remediated grade.
Credit Hour Calculation

The Graduate College of Biomedical Sciences courses are rated at one credit hour for every 12 contact hours.

Grade Appeals Process

Appealing a Course Grade

If a student believes there is just cause to dispute a grade for a course, the procedure is as follows: Within five (5) days of receipt of the course grade, the student must make an appointment with the course instructor(s) who issued the grade. Upon written request from the student, the course instructor(s) shall review the case with the student, and a decision shall be made by the course instructor to affirm or modify the grade. Within ten (10) working days of the student's written request, the course instructor shall notify the student in writing of the decision. If warranted a copy of the Grade Change Form shall be sent to the student and the Master of Science in Medical Sciences Program Director.

Within five (5) working days following written notification to the student regarding the instructor's decision, the student may appeal the decision in writing to the MSMS Program Director. The appeal request must be accompanied by a narrative explaining the basis for the appeal. The narrative should fully explain the student's situation and substantiate the reason(s) for advocating a review of the prior decision of the instructor. The MSMS Program Director may grant an appeal only if a claim of (1) bias, (2) the appearance of new material and documentable evidence that was not available at the time of the instructor's decision, or (3) procedural error that unfairly affected the decision-making process is substantiated by the Director. Upon written request from the student with a valid appeal rationale, the MSMS Program Director shall review the case and within seven (10) working days shall issue a decision in writing to the student, which may affirm, modify, or reverse the previous action of the instructor.

The Program Director's decision is final in all course grade appeals except when the Program Director is the official instructor of the course in question. In such a case, the student will direct his or her appeal to the Dean of the Graduate College of Biomedical Sciences, following the same guidelines for an appeal to the Program Director. The decision of the Dean in this instance is final.

The student may remain in class pending the outcome of appeals, except in cases of summary suspension or when the Provost, Vice Provost or the Dean of the Graduate College of Biomedical Sciences has suspended the student or has otherwise determined that it is inappropriate for the student to remain in class.

Issues/Dispute Resolution Procedure

When an issue or dispute arises between students, the issue/dispute resolution process starts with communication among the involved students. If a satisfactory resolution is not arrived at that level, the matter should then be addressed with the course instructor or the faculty advisor. If the problem is not resolved at the faculty advisor/course instructor level, the matter should be brought to the Program Director, followed by the Dean and then the Provost/COO. If the matter has not been resolved at those levels, the final arbiter is the President.

When an incident arises involving a faculty member, the first step in the issue/dispute resolution process is discussion with the faculty member. If the matter is not satisfactorily resolved at that level,
then the matter should be referred to the Program Director, Dean, and Provost/COO, in that order. The final arbiter is the Board of Trustees.

When an incident arises involving a staff member, the dispute resolution process begins with the Program Director, followed by the Dean. The Office of Human Resources is the final arbiter.

Failure to follow this sequence of steps will only serve to delay the appropriate resolution of the issue or dispute as the matter will only be referred back to the correct level in this chain of responsibility.

**Curriculum Organization**
To graduate, students must complete a minimum of 45.50 credit hours.

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCBS 5020</td>
<td>Critical Learning &amp; Communication Skills in the Health Prof. I</td>
<td>2.00</td>
</tr>
<tr>
<td>GCBS 5021</td>
<td>Critical Learning &amp; Communication Skills in the Health Prof. II</td>
<td>2.00</td>
</tr>
<tr>
<td>GCBS 5022</td>
<td>Neurological Integration of Psychophysical Processes I</td>
<td>1.00</td>
</tr>
<tr>
<td>GCBS 5030</td>
<td>MSMS Intensive Summer Anatomy Course</td>
<td>8.50</td>
</tr>
<tr>
<td>GCBS 5041</td>
<td>Molecular and Cellular Basis of Life</td>
<td>5.00</td>
</tr>
<tr>
<td>GCBS 5042</td>
<td>Physical and Biochemical Systems</td>
<td>5.00</td>
</tr>
<tr>
<td>GCBS 5061</td>
<td>Intro to Clinical Research &amp; Evidence-Based Decision Making</td>
<td>3.00</td>
</tr>
<tr>
<td>GCBS 5035</td>
<td>Head and Neck Anatomy OR</td>
<td></td>
</tr>
<tr>
<td>GCBS 5070</td>
<td>Research Service Learning</td>
<td>4.00</td>
</tr>
<tr>
<td><strong>Total Required Credit Hours:</strong></td>
<td></td>
<td><strong>30.50</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>GCBS 5062</td>
<td>Clinical Research &amp; Evidence-Based Decision Making Capstone</td>
<td>3.00</td>
</tr>
<tr>
<td>GCBS 5079</td>
<td>Microbiology: Biological Systems in Human Disease</td>
<td>4.00</td>
</tr>
<tr>
<td>GCBS 5082</td>
<td>Clinician and Society</td>
<td>3.00</td>
</tr>
<tr>
<td>GCBS 5083</td>
<td>Clinical Environments in Health Care</td>
<td>3.00</td>
</tr>
<tr>
<td>GCBS 5090</td>
<td>Biomedical Statistics and Research Design</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>Total Required Credit Hours:</strong></td>
<td></td>
<td><strong>15.00</strong></td>
</tr>
</tbody>
</table>
Course Descriptions

All courses are awarded letter grades, except when indicated otherwise.

**GCBS 5000 Introduction to Interprofessional Education I (1 credit hour)**

This course prepares students to gain an understanding of the different health care professions and how they collaborate to promote patient and community centered care. GCBS 5000 is designed to instill an awareness level in the student regarding non-technical competencies such as communication, collaborative practice, and scope of practice issues. Student will initially receive foundational information on the above competencies. Students will then observe a small interprofessional group, case-based discussion designed to further promote an awareness of the importance of the collaborative care model. Utilizing this case as a learning vehicle, the student will observe the importance of additional elements common to all professions, such as ethical, behavioral, social and psychological issues that will impact the health and well-being of the patient or community. The student will then be expected to integrate this knowledge into a short research paper that describes a critical need for interprofessional education or practice. This course will not be offered during the academic year 2013/2014.

**GCBS 5020 Critical Learning and Communication Skills in the Health Professions I (2 credit hours)**

The first part of a two trimester sequence intended to expose students to myriad techniques and approaches for being a successful graduate student and for becoming a life-long learner. Students will have the opportunity to study and apply practical techniques to maximize comprehension and retention of material, supporting theory for these techniques, and current scholarship in which these theories and techniques are discussed. In addition, students will explore myriad aspects of group performance. Beyond study skills, the course will emphasize numerous aspects of graduate-level education including the management of time and stress; increasing focus, concentration, motivation and memory; strategies for reading, note-taking, and studying; assessment of learning style; approaches to test-taking; effective and written and oral communication.

**GCBS 5021 Critical Learning and Communication Skills in the Health Professions II (2 credit hours)**

The second semester of a two trimester sequence intended to expose students to myriad techniques and approaches for being a successful graduate student and for becoming a life-long learner. Students will have the opportunity to study and apply practical techniques to maximize comprehension and retention of material, supporting theory for these techniques, and current scholarship in which these theories and techniques are discussed. In addition, students will explore myriad aspects of group performance. Beyond study skills, the course will emphasize numerous aspects of graduate-level education including the management of time and stress; increasing focus, concentration, motivation and memory; strategies for reading, note-taking, and studying; assessment of learning style; approaches to test-taking; effective and written and oral communication. For some students a potential part of this course might include taking a MCAT/DAT/PCAT/OAT or GRE test preparation course through a commercial company.

**GCBS 5022 Neurological Integration of Psychophysical Processes Intensive I (1 credit hour)**

This course familiarizes the pre-healthcare student with evidence-based mind-body modalities as they pertain to intra-personal skills, cultivating positive coping, emotional intelligence and attention skills to further academic and overall wellness.
GCBS 5030 Intensive Summer Anatomy Course (MS-ISAC) (8.5 credit hours)

The Master of Science in Medical Sciences Intensive Summer Anatomy Course (ISAC) is an accelerated equivalent of the post-cranial portion of DO5030, given in 6.5 weeks. Material covered in this regional approach includes the shoulder and upper limb, thorax and its viscera, abdomen and its viscera, the pelvis, its viscera, the male and female perineum and lower limb. The objectives include the mastery of nomenclature and spatial relationships of human anatomical systems. It is expected that students will understand the anatomical portion of selected clinical correlations. Course consists of didactic and practical components, and includes dissection of human cadavers. Assessment is by means of written and laboratory practical examinations, as well as regular quizzes.

GCBS 5035: Head and Neck Anatomy with Facilitation Training (4 credit hours)

This course is an elective continuation of the intensive summer anatomy course open to students by permission of instructor only. Through lecture and laboratory, students are introduced to the anatomy of the head and neck. Particular attention is paid to the cranial nerves, both their normal function and the numerous clinical syndromes that affect them. At the end of this course, and with satisfactory completion of all dissections and assignments the instructor will select students who will be able to serve as facilitators for Head and Neck Anatomy (DO 5035). Facilitators participate in peer-led team learning (PLTL) and laboratory based experiential learning.

GCBS 5041 Molecular and Cellular Basis of Life (5 credit hours)

This course presents an integration of molecular biology, cellular physiology and metabolism in prokaryotes and eukaryotes as well as an introduction to host defense responses within the context of their clinical applications of basic biomedical sciences. Students will develop an understanding of the principles of molecular biology, including DNA replication and expression of genetic information. They will learn the basic concepts of cellular physiology and metabolism in both prokaryotes and eukaryotes and understand the major types of tissues/cells of the human body as well as the basic function of each tissue/cell type.

GCBS 5042 Physical and Biochemical Systems (5 credit hours)

The overall goal of this course is to introduce students to the most important concepts and principles of biological chemistry. Topics previously covered in earlier chemistry and biology courses will be expanded and placed in the context of the living organism. The key objective is to understand and be able to apply concepts rather than merely memorize information. Subject areas covered include: macromolecular structure, reactivity and function, thermodynamics, carbohydrate, lipid, amino acid metabolism and nucleotide metabolism, and metabolic interrelationships between organs and pathways. Students attending this course will develop an understanding of the principles of biological chemistry, including thermodynamics, kinetics and macromolecular structure, function and reactivity. They will learn the basic concepts of metabolism in human systems, in both health and disease and demonstrate skills in the interpretation of contemporary biochemical data on each of the major classes of biological macromolecules, as well as in the interpretation of clinical data relating to the understanding of the roles of biomolecules and the integration of metabolism.
GCBS 5061 Introduction to Clinical Research & Evidence-Based Decision Making (3 credit hours)
This course aims to introduce students to the conduct of basic, translational, and clinical biomedical scientific research. In addition participants will gain a broader understanding of research in the community and how to develop a research agenda from existing community based programs. This is an introduction to several key concepts, and students are not expected to have a deep mastery of statistics, research methodology, or online bibliographic databases prior to taking the course. Students attending this course will develop an approach to health care incorporating judicious integration of systematic assessments of clinically relevant scientific evidence in the context of patient treatment needs and preferences. Students will understand and evaluate epidemiological methodology in the published literature and assess results of clinical trials in light of statistical, ethical, and methodological considerations, by critically appraising the evidence for its validity and importance regarding diagnosis and screening, prognosis, therapy and etiology/harm. Students will be linked with mentors appropriate to their research interests and will develop a precise question in the research context.

GCBS 5062 Clinical Research & Evidence-Based Decision Making CAPSTONE COURSE (3 credit hours)
Building on GCBS 5061 emphasis will be placed on training students to appropriately utilize and evaluate the biomedical literature across health professions. As a result, this course will prepare students to engage in evidence-based decision making, providing the skills needed to locate relevant online scientific/medical information as well as to evaluate the quality of the research methodologies and statistical analyses reported in the clinical research literature. The primary focus is from a clinical practitioner/researcher standpoint rather than that of a basic sciences researcher. Prerequisite for GCBS 5062 is GCBS 5061.

GCBS 5070 Research Service Learning (4 credit hours)
Service learning in the biomedical science research enhances student confidence and understanding of the research underpinning that informs their future clinical practice. Additionally, it increases student capacity and confidence to utilize that understanding in the conduct of creative, problem-solving. Students will be placed with a faculty researcher to participate in the process of original inquiry, either clinical or bench research. Learning through faculty-mentored investigation allows students to put in practice the scientific concepts they are learning in their didactic courses deepening their understanding of the basic medical sciences necessary for the practice of health care. Students are expected to devote 8-10 hours of their week in this process and should be expected to proficiently document their research via a small paper, annotated bibliography of papers set forth by the students mentor researcher, and to be able discuss proficiently the reasoning behind the inquiry and methodologies utilized in the research.

GCBS 5079 Microbiology: Biological Systems in Human Disease (4 credit hours)
This course is offered to the first year students in the Master of Science in Medical Sciences Program. This course presents an integration study on the basics of microbiology, including microbial structure, function, metabolism, genetics, and the relationship of microbes with the host and host-defense mechanisms. In addition, the major pathogenic microbes (bacteria, viruses, fungi, and protozoa) and the diseases they cause will be discussed. The students will be expected to learn basic and clinical lab techniques as well as their application in the identification of various microbes.
GCBS 5082 Clinician and Society (3 credit hours)

The Clinician and Society (CAS) course will provide the pre-healthcare professional student with the opportunity to experience and begin to understand the multi-faceted and complex nature of the healthcare professions as they relate to society at large. The student will gain insight into the many social components that both influence and shape healthcare practice and the societal perspectives that influence how the healthcare practitioner is perceived by society. At the end of this course students will be able to describe the historical development of modern healthcare practice and the contributions of healthcare practitioners from antiquity to the present who made key contributions to the evolution of medicine and medical practice. Students will discuss the history of osteopathic medicine in the United States and the unique philosophical and practical contributions that Andrew Taylor Still made to medicine. The history of osteopathic medicine in California, as well as the history of podiatry, optometry, dentistry and veterinary medicine will be covered. Major elements of medical professionalism why it is critical in the practice of the health sciences will be emphasized through the course.

GCBS 5083 Clinical Environments in Health Care (3 credits hours)

This course provides a critical experiential learning opportunity for the Master of Science in Medical Sciences specifically placing the clinical provision of care in its broader context, integrating both theory and practice with reflection. It is a learning process through which the learner constructs knowledge, attitudes, skills, competencies and understanding through direct reflective experience. In short the course provides an opportunity for students to learn while doing. Students will meet with faculty and staff to arrange a clinical placement for the final semester of the program. Students are expected to shadow or intern in their placement for a minimum of 5 hours per week throughout the semester and to keep a reflective journal of their experiences. Students who participate in these opportunities tend to be more excited, enthusiastic and engaged in their studies, perform better in the classroom, and develop knowledge, skills and abilities that give them a strong competitive edge in obtaining graduate admission. Students in these activities develop both competence in the theory and practice of their discipline and confidence in their ability to function as future professionals.

GCBS 5090 Biomedical Statistics and Research (2 credit hours)

This course will cover various topics in descriptive and inferential statistics intended to introduce the student to the theoretical and practical aspects of statistics in research. Various topics will include central tendency, variability, hypothesis testing, multi-factorial analysis of variance, trend analysis, regression analysis and correlation.

GCBS 5100 Introduction to Interprofessional Education II (1 credit hour)

This course is designed to instill in the student the importance of collaboration and teamwork in health care settings, both at the individual patient and the community levels. The concept of teamwork will be implemented as the student will be expected to apply baseline knowledge from GCBS 5000 toward completion of a group project. The project will focus on development of a coordinated care case, development of a health care system model, or other community based project approved by the Course Director. The project must not only demonstrate an understanding of collaborative care in the community and the dynamic and integrated relationship of individual community systems as they affect individual and community health and wellness, but the student must also demonstrate successful team dynamics within his/her group. Prerequisite: Successful completion of GCBS 5000. This course will not be offered during the academic year 2013/2014.
Honors and Awards
The following awards are considered for presentation to MSMS students annually:

  Community Service Award
  Dean’ List
  Dean’s Scholarship
  Poster Presentation Honors
  Provost’s Scholarship
### Academic Calendar

#### Fall 2014
- **Monday, June 2, 2014**  
  *Orientation/Fall Classes Begin*
- **Friday, July 4, 2014**  
  *Independence Day – No Classes*
- **Saturday, August 9, 2014**  
  *Convocation/White Coat Ceremony*
- **Monday, September 1, 2014**  
  *Labor Day – No Classes*
- **Monday, October 13, 2014**  
  *Columbus Day – No Classes*
- **Wednesday, November 26, 2014**  
  *Thanksgiving Recess Begins @ 5:00 p.m.*
- **Monday, December 1, 2014**  
  *Classes Resume*
- **Friday, December 19, 2014**  
  *End of Fall Semester Classes*
- **Monday, December 23, 2013**  
  *Winter Recess Begins*

#### Spring 2015
- **Monday, January 5, 2015**  
  *Spring Classes Begin*
- **Monday, January 19, 2015**  
  *Martin Luther King Day – No Classes*
- **Monday, February 16, 2015**  
  *President’s Day – No Classes*
- **Monday, March 23, 2015**  
  *Spring Break Begins*
- **Monday, March 30, 2015**  
  *Spring Classes Resume*
- **Wednesday – Friday, May 20-22, 2015**  
  *Commencement*
- **Friday, May 22, 2015**  
  *End of Spring Semester Classes*