

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 Avenue, Suite 100. Alameda, CA 94570. (510) 748-9001. Approval of the MS 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 in a unique rigorous inter-professional environment for successful application to professional programs, both external and internal.

PROGRAM OVERVIEW

A minimum of 45 semester credit hours is required for completion of the MSMS program. This includes 28 hours of didactic study and 12 hours of clinical shadowing, research, small group case-based learning and laboratory leading to a thesis. The program emphasizes integration of biomedical science and research-based knowledge in clinical decision making. Courses, laboratory experiences, research and direct students towards integration of scientific knowledge, literature evaluation and clinical decision making, culminating in a capstone course, assessed by examination and final project.

PROGRAM FACULTY

Program faculty has appointments in College of 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 or Bachelor of Arts degree with strong science component. Minimum criteria to receive consideration for admission follow. 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)
 - Dental Admission Test (DAT)
 - Optometry Admissions Test (OAT)

- Three letters of reference from individuals familiar with the applicant's scholarship, appropriateness for a health care profession, and research potential.

Application Deadline: April 15, 2010

Applications must be received (including all supporting application materials) no later than April 15, 2010. Completed applications that arrive before the deadline will be considered on a rolling basis.

Transfer Credit

No transfer credit will be accepted

ADMISSION PREREQUISITES

- a bachelor's degree with a strong science component
- at least a 2.5 overall grade point average
- 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)
 - English (6 semester units)
 - Behavioral Sciences (6 semester units)

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.

PROGRAM AT A GLANCE

Degree	Master of Science in Medical Sciences
Application Fee	\$50.00
Classes Start	June 14, 2010
Nonrefundable Tuition Deposit.....	\$250.00
Annual Tuition.....	\$20,500.00

(Fees can be waived under certain circumstances. For more information please go to <http://prospective.westernu.edu/medical-sciences/apply>.)

*(Applicable to the 2010 academic year and subject to change annually)

APPLICATION PROCESS

Applications and detailed information on how to apply can be found at <http://prospective.westernu.edu/clinical-sciences/apply>. All applicants must submit the following directly to WesternU Admissions Office:

- WesternU-MSMS application
- GRE/MCAT/DAT/OAT
- TOEFL scores (for graduates of foreign universities)
- a personal statement
- a current résumé
- 3 letters of reference
- All college transcripts

REGISTRATION

All students are required to register by the registration date specified in the University Calendar by the Registrar. Matriculation and graduation are subject to satisfactory completion of all academic requirements and payment of all outstanding debts to the University. Prior to registration, first-time matriculants must supply a final transcript(s), a physical examination with documentation of required immunizations and proof of health insurance coverage. The health insurance coverage must be in effect throughout the academic year. If there is no proof of current coverage, a policy provided by the University is available.

TUITION AND FEES

In estimating costs for one academic year of study at Western University of Health Sciences' MSMS program, you should include tuition and fees, laptop computer and printer, books and supplies, room and board, and other miscellaneous expenses. Actions of the Board of Trustees setting tuition and fees for the academic year are established during the previous spring term. The most current tuition and fees are as follows (subject to change):

- Tuition - \$21,463 for 2011-12 Academic Year.
- Application Fee - Non-refundable \$50 fee for those applying to the Western University MSMS program.

Other Fees

- \$300 Graduation Fee (assessed on candidates for graduation only)
- \$400 (annual) Western University Parking Permit Fee (Optional)
- \$40 (annual) Student Body Fee (1st, 2nd and 3rd year students)

- \$20 (annual) Student Body Fee (4th year students)
- \$250 Tuition Deposit Fee
- \$30 (per business day) Late Registration Fee
- \$40 Lost Mail Locker Key
- \$10 (each) Copy of Official Transcript
- \$21 (each) Rush Transcript, First Class Mail
- \$25 (each) Rush Transcript, Federal Express
- \$10 Lost ID Badge
- \$0.25 (per page) Copy of Student File Material
(replacement cost) Breakage Fee

FINANCIAL SUPPORT

Financial support, which includes partial or full payment of tuition, is available to qualified applicants on a limited, competitive basis.

FINANCIAL AID

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 aid, 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 Web site at www.prospective.westernu.edu for further information.

ACADEMIC POLICIES AND PROCEDURES

Institutional and Program specific learning outcomes are listed below with attributes.

Western University Institutional Student Learning Outcomes	Health Professional Education
1. Critical Thinking and Clinical Reasoning	Identify and solve problems that require the integration of multiple contexts when applying patient care.
2. Diagnosis, Management & Prevention/Clinical Competence	Demonstrate diagnostic and therapeutic skills and apply relevant information to patient care and practice, and to educate patients regarding prevention of common health problems.
3. Interpersonal and Effective Communication Skills	Demonstrate effectively interpersonal skills that enable them to establish and maintain therapeutic relationships with patients and other members of the health care team.
4. Collaboration Skills	Demonstrate collaboration with clients and with other health professionals to develop a plan of care to achieve patients' positive health outcomes,
5. Ethical & Moral Decision Making Skills	Demonstrate the highest quality of care, governed by ethical principles, integrity, honesty and compassion.
6. Humanistic, Caring and Compassionate Care	Practice compassionate care
7. Life Long Learning	Engage in life-long, self-directed learning to validate continued competence in practice.
8. Using Evidence-Based Practice	Utilize research and evidence-based practice and apply relevant findings to the care of patients.

Master of Science in Medical Sciences Learning Outcomes	Health Professional Education
1. Professionalism	Exhibit appropriate behavior regarding comportment, dress, language, punctuality, responsibility and attitude during all activities.
2. Critical Thinking	Develop an approach to learning and health care incorporating judicious integration of systematic assessments of relevant clinical and scientific evidence

3. Narrative Competence	Construct accurate written and oral summaries of scientific information and patient histories with facility
4. Ethics and Humanism	Demonstrate knowledge and implementation of ethical principles in scientific conduct and patient care. Exhibit qualities of humanism
5. Subject Competence	Demonstrate knowledge of scientific principles and practice and implement self-evaluation and life-long learning.

Attendance and Absences

Attendance is required at all scheduled instructional periods. Absence from instructional periods for any reason does not relieve the student from responsibility for the material covered during the periods missed. Excused absence for exams and assignment is only granted on medical and emergency grounds and must be obtained from 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 may be required.

Course Load:

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.

Vacation and Emergencies

Students receive two weeks' vacation each year over the Christmas 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 program director and Dean. It is the Dean's and program director prerogative whether to grant the time off and 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 Dean, GCBS. 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 Faculty Advisor Assignment & Duties

Enrolled students will be assigned a faculty advisor during orientation, matched to the professional goals of the student. This advisor will focus on professional career mentorship. The MSMS Program Director will act as academic progress and pre-professional advisor to all enrolled students, and as such advises enrolled MSMS 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 also will conduct workshops and programs for MSMS students on topics such as Interviewing, Writing a Personal Statement, Application Time Lines, Securing Letters of Evaluation, 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.

1. MSMS 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.
2. MSMS candidates will prepare a five minute oral defense presentation of proposal to capstone committee, a subset of the MSMS Advisory Committee.

- If successfully defended, the MSMS candidates will prepare and present orally their findings assisted by either poster or PowerPoint at a special MSMS colloquium to members of the Graduate College and the University.

Grading System

Official grades are turned in to the Registrar from the College of Graduate Biomedical Sciences Dean, 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. For more information on how to access the BanWeb student records system, visit our Online Computing Resources page at <http://www.westernu.edu/xp/edu/computing/computing-banweb.xml>.

Western University of Health Sciences GCBS makes use of letter grades with a +/- qualifier. A seven-valued letter grade scale will be given, indicating Grade Quality Points

Letter Grade	Description	Grade Points
A	Outstanding	4.00
A-	Excellent	3.70
B+	Very Good	3.30
B	Good	3.00
B-	Above Average	2.70
C+	Satisfactory	2.30
C	Marginally passing, and below required overall GPA	2.00
U	Unsatisfactory	0.00
CR	Credit	0.00
NCR	No Credit	0.00
Au	Audit	0.00
W	Withdrawal	0.00
M	Missing	0.00
I	Incomplete	0.00

Courses are rated at one credit hour for each 12 contact hours. . A cumulative grade point average will be calculated and posted on the transcript. The grade point average is calculated at the end of each semester. If a course is repeated, only the last grade earned enters into the computation of the grade point average, but the original grade remains on the student's transcript.

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.

Withdrawing from Courses

Students may not drop individual courses within the curriculum. If a student wishes to drop from the program, they 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 term. Please note that all 'W' grades received from the previous attempts will remain on the student's transcript Please see Western University Tuition Refund Policy for additional information.

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 the 6 weeks or the final grade will be permanently recorded as a "U".

Academic Standing

Only grades in Western University of Health Sciences courses approved for graduate credit will be used in determining the overall grade point average for continuation in the MSMS program. Students receiving a failing

grade in any course will be reviewed by the Student Progress Committee (SPC) of the GCBS and a recommendation regarding remediation will be made to the Dean of the GCBS. Students who achieve a grade of C or lower may petition the SPC to remediate the following courses: DO 5002, GCBS 5041, 5042, 5090, and 5081. At the discretion of the SPC, course remediation may involve repeating the entire course or taken a comprehensive examination. Ordinarily, the opportunity to remediate is not offered to the student for more than 2 courses during the entire course of study. The educational objectives that underlie remedial teaching and evaluation will be the same as the educational objectives that underlie regular courses in the curriculum. A student who successfully remediates a course will receive the grade awarded in the remediation. The score (grade) achieved by remediation will be recorded on the transcript along with a notation of the original grade (example: U/B). Only the remediated grade will count toward the total GPA. The academic record of a student who does not pass the remediation of a course will be reviewed by the SPC, and the student may be required to repeat a semester, repeat the academic year in its entirety, or be dismissed from the GCBS.

If, at the end of any semester, the cumulative grade point average falls below 2.5, the student will be placed on academic probation, and financial support will be discontinued. A 2.0 (C) grade earned in any class may be applied toward graduation only if the overall grade point average at the time of application for graduation continues at a minimum 2.3 cumulative grade point average. Any grade below a 2.0 (C) may not be applied toward graduation.

Tutorial Assistant Program:

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

Academic Probation/Academic Suspension/Dismissal

If the cumulative grade point average remains below a 2.5 after the student completes a total of 14 graded credit units subsequent to being placed on academic probation, the student may be placed on academic suspension or be dismissed from the program.

Standards of Academic and Professional Conduct: GCBS Honor Code

Honesty and integrity are among the most valued traits of academic researchers and health-related scientists. 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 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.

Time Limits

All requirements for the degree must be fulfilled within 1 academic year from the date of initial matriculation. Extensions of this limit may be granted due to Leave of Absence or special permission of the Dean of the Graduate College of Biomedical Sciences; a maximum extension of up to 3 years will be allowed to complete all graduation requirements.

Graduation Requirements

For successful completion of the MSMS program, the faculty of the Graduate College of Biomedical Sciences has established guidelines and requirements in addition to the courses and optional requirements listed above. Minimum requirements for graduation with an MS include:

1. Successful completion of all required coursework and attainment of a cumulative GPA of 2.50 or greater with no more than two courses completed with a grade of C (2.00)
2. Is not on probation, academic suspension, or conduct suspension and has completed all prescribed academic requirements with no outstanding grades of U, NCR, or I.
3. Has demonstrated no serious deficiencies in ethical, professional, or personal conduct that would make it inappropriate to award the Master of Science in Medical Sciences degree.
4. Satisfactory completion and oral defense of the final capstone project
5. Completion of the program within two semesters, unless leave of Absence is granted. All students are expected to participate as full-time students.
6. All legal and financial requirements of the University as stated in the University Catalog have been met.

No student will receive his/her diploma until that student has successfully completed all requirements for graduation. All students must attend and participate in the Commencement program at which time the degree is conferred, unless the President of Western University of Health Sciences has granted special permission to waive this requirement. If the President grants special permission to be excused from attending the Commencement program, the graduate may be required to present himself or herself to a designated University Official at a later date in order to take the required oath (if relevant) and receive his or her diploma.

PROGRAM DESCRIPTION

To graduate, students must complete a minimum of 45 credit hours.

Orientation 1 day: time management, academic and social resources, team building, professionalism, learning skills.

Fall Semester A

DO 5002 Intensive Summer Anatomy Course (ISAC 8.5 credit hours) OR
GCBS 5001 SMSPP Preparatory Course (8.5 credit hours)
GCBS 5090 Biomedical Statistics and Research design (2 credit hours)
GCBS 5020 Critical Learning and Communication Skills in the Health Professions I (3 credit hours)
GCBS 5035 Head and Neck Anatomy with Facilitation Training (4 credit hours, elective)

Fall Semester B

GCBS 5041 Molecular and Cellular Basis of Life (5 credit hours)
GCBS 5042 Physical and Biochemical Systems (5 credit hours)
(courses above run in sequential blocks, not concurrently)
GCBS 5000 Introduction to Interprofessional Education I (1 credit hour)
GCBS 5070 Service Learning (4 credit hours) OR
GCBS 5021 Critical Learning and Communication Skills in the Health Professions II (3 credit hours)

Spring Semester 3

GCBS 5081 Microbiology: Biological Systems in Human Disease (4 credit hours)
GCBS 5082 Clinician And Society (3 credit hours)
GCBS 5083 Clinical Environments in Health Care (3 credit hours)
GCBS 5100 Introduction to Interprofessional Education II (1 credit hour)
GCBS 5062 Clinical Research & Evidence-Based Decision Making CAPSTONE COURSE (3 credit hours)

COURSE DESCRIPTIONS

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

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.

GCBS 5001 Summer Medical Sciences Preparatory Program (8.5 credit hours) (Graded)

This is an elective course. The Summer Preparatory Program prepares incoming students for the Gross Anatomy course and provides an introduction to biochemistry. The anatomy component focuses on the skeletal, muscular, cardiovascular and nervous systems, and a brief overview of other body systems. Presentations also focus on enhancing student study and test-taking skills. This course is intended for students without prior course work in anatomy.

GCBS 5020 Critical Learning and Communication Skills in the Health Professions I (3 credit hours) (Graded)

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 (3 credit hours) (CR/NCR)

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

This course is an elective continuation of the Intensive Summer Anatomy course (ISAC, OM 5002), 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. Training in lab facilitation and preparation of prosection for teaching is also provided. As part of this course, all enrolled students will serve as facilitators for Head and Neck Anatomy (OM 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) (Graded)

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)(Graded)

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 5062 Clinical Research & Evidence-Based Decision Making CAPSTONE COURSE (3 credit hours) (Graded)

This course aims to introduce students to clinical research methods as well as basic and advanced concepts of evidence-based practice in the health professions. 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 focus is from a clinical practitioner/researcher standpoint rather than that of a basic sciences researcher. 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. They will develop a precise question in the research context and utilize effective evidence-based practice search strategies applying the results to practice.

GCBS 5070 Service Learning(4 credit hours)(Graded)

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 5081 Microbiology: Biological Systems in Human Disease (4 credit hours)(Graded)

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) (Graded)

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) (Graded)

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)(Graded)

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 each) (Graded)

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.

The following courses are also part of the MSMS degree program.

OM 5002 Intensive Summer Anatomy Course (ISAC) (8.5 credit hours) (Graded)

Prerequisite: Application to the course and permission of instructor. The Intensive Summer Anatomy Course (ISAC) is an accelerated equivalent to DO5030, given in 6.5 weeks to highly qualified incoming students. ISAC students who score 80% and above at the end of this course are selected to serve as facilitators (peer leaders) for Gross Anatomy DO5030. Facilitators participate in peer-led team learning (PLTL) and experiential learning and enroll in DO 5003 in lieu of DO5030. Facilitators lead dissection and discussion groups at intervals during the course, and some are selected as teaching assistants for the ISAC the following summer.

MSMS PROGRAM ACADEMIC CALENDAR 2011-2012

Fall Semester

April 1, 2011
Application Deadline

Monday, March 26, 2012
Classes Resume

June 1-10, 2010\1
Orientation

Friday, May 18, 2012
Spring Semester Ends

June 1, 2011
Classes Begin/Tuition Due

Thursday/Friday, May 17/18, 2012
Commencement

Friday, July 1, 2011
Last Day of Classes

Monday, May 28, 2012
Memorial Day (No Classes)

Monday, July 4, 2011
Independence Day (no classes)

Tuesday, July 6, 2011
Classes Resume

Saturday, August 6, 2011
Convocation

Monday, September 5, 2011
Labor Day (No Classes)

Monday, October 10, 2011
Columbus Day (No Classes)

Wednesday, November 23, 2011 (5 pm)
Last Day of Classes

Monday, November 28, 2011
Classes Resume

Friday, December 16, 2011
Fall Classes End

Spring Semester

Monday, January 2, 2012
Spring Semester Begins/Tuition Due

Monday, January 16, 2012
Martin Luther King, Jr. Day (No Classes)

Monday, February 20, 2013
President's Day (No Classes)

Monday, March 19, 2012
Spring Break Begins