



**School of Mathematics and Sciences
DeBusk College of Osteopathic Medicine
Carter and Moyers School of Education
College of Veterinary Medicine**

Master of Science

Biomedical Professions

Anatomical Sciences

Life Science Research

Life Science Teaching

2015 – 2016 Catalog

6965 Cumberland Gap Parkway
Harrogate, Tennessee 37752
423.869.6330

LINCOLN MEMORIAL UNIVERSITY

Master of Science Catalog

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This edition of the *Master of Science Catalog* is effective July 1, 2015. The policies, programs, curricula, and fees set forth in this catalog are subject to change at any time at the discretion of Lincoln Memorial University (LMU). Because of the possibility of change or undetected error, important points of fact and interpretation should be confirmed by the appropriate University official.

In support of the mission statement and the principles on which it is based, LMU is committed to equal opportunity for all students, staff, and faculty; and to nondiscrimination in the recruitment, admission, and retention of students, and the recruitment, hiring, promotion, and retention of faculty and staff.

LMU reaffirms its commitment to personnel and educational policies that comply with the requirement applicable to equal opportunity/affirmative action laws, directives, executive orders, and regulations to the effect that no person at LMU shall, on the basis of age, color, creed, disability, ethnic/national origin, gender, military status, pregnancy, race, religion, sexual orientation, or any other class protected by applicable law, be excluded from participating in, or be denied benefits of, any employment or educational opportunity.

LMU is accredited by the **Commission on Colleges of the Southern Association of Colleges and Schools** to award associate, baccalaureate, masters, specialist, and doctorate degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097, or call 404-679-4500, for questions about the accreditation of Lincoln Memorial University.

MESSAGE FROM THE PRESIDENT

Dr. B. James Dawson

Lincoln Memorial University is a living legacy to President Abraham Lincoln. Ours is a mission that has remained true to the vision of our namesake, a guiding light for thousands of men and women whose lives have been transformed by their experiences here. It is my hope that you fulfill your ambitions and dreams while pursuing a degree on our campus. Upon completion of your goals you will carry with you a sense of pride that comes from your accomplishments.

Let me congratulate you on making the decision to continue your education at Lincoln Memorial University. The faculty and staff of LMU are committed to providing an experience of uncommon quality characterized by personal attention and a true interest in your success. We provide a learning environment that maximizes the use of technology and ensures opportunities for personal interaction. The investment you are making in your future will pay dividends for your lifetime. The degree you receive will be enhanced by the growing reputation of our University.

I trust that you will achieve your full potential as a student on this lovely campus. By realizing your goals here, you become a part of the legacy that began in 1897, and are now a member of our academic community. There are responsibilities associated with your engagement in our living and learning environment. Above all else, we expect all of our students to respect their student colleagues and to pursue their educational aspirations with a commitment to academic integrity. Keep your dream of completing your education ever before you and know that you will succeed. I am honored that you join us now and wish you much success.

Message From The Dean and Directors

The following important information has been compiled in hopes of making your time at LMU as successful as possible. As you will see we have included various items that will be beneficial to you. **It is important that you read these materials and thoroughly understand them.** In particular, please pay close attention to the Curriculum & Standards section. It is your responsibility as a student to make sure that you are familiar with the procedures and follow them accordingly.

You have an academically challenging curriculum ahead of you. It is our hope that the Master of Science (MS) program will serve you well and allow you to become prepared for the future you desire.

Amiel Jarstfer, PhD

Master of Science, Administrative Dean
Dean, School of Mathematics and Sciences

Gerald Osborn, DO, MPhil

Master of Science Biomedical Professions Program Director

Natalie Langley, PhD, D-ABFA

Master of Science Anatomical Sciences Program Director

Tammy Barnes, EdD

Master of Science Life Science Teaching ITL Interim Program Director

Holly Napier, MBA

Master of Science Recruitment & Student Services Coordinator
Pre-Professional Coordinator

Table of Contents

Message from the President	4
Message from the Dean and Program Directors	5
Table of Contents	6-8
Lincoln Memorial University Mission Statement	9
University Governance and Administration	9
Board of Trustees	9 – 10
Administration	10 – 11
Master of Science Program Mission Statement	12
Master of Science (MS) Program Overview	12 - 16
Anatomical Sciences	13
Biomedical Professions.....	13 - 15
Life Science Research	16
Life Science Teaching, Initial Teacher Licensure	15 - 16
MS Admission Requirements & Procedures	16 - 23
Admission Requirements & Standards	16 – 18
Program Acceptance	18 - 19
Acceptance Deposits	19
Tuition & Fees	19 – 20
Course Load	20
Refund Policies	20 - 21
Official Withdrawal	21 - 22
Unofficial Withdrawal	21
Summer Withdrawals	22
Refund of Housing Reservation and Damage Deposit	22
Refund of Credit Balance	22
Financial Aid	22 - 23
Off Campus Authorities	23
Orientations	23
MS Standing Oversight Committees	24 - 25
Master of Science Graduate Council	24
Admission Committees	24
Thesis Supervisory Committees	24 - 25
Appeals Committee	25
MS General Policies & Standards	25 - 35
Appeals	25 - 26

Attendance	26
Medical Leave of Absence	26
LMU Student Complaint Process	26 – 27
LMU Institutional Satisfactory Academic Progress Policy	27- 29
Regaining Eligibility	29
MS Program Satisfactory Academic Progress Policy	30
Change of Major	30
Dual Major	30 – 31
Course Repetition.....	31
Participation in DCOM courses	31
Participation in research courses	31
Research Awards	32
General Graduation Requirements	32
Life Science Teaching, Initial Teacher Licensure Graduation Requirements	32 - 35
MS Student Services & Campus Life	36 - 37
Conduct Policy	36
Professionalism	36
Housing/Residential Life	36
Dining Options	36
Web Advisor	36 - 37
Library Services	37
FERPA	37 – 38
ADA Statement	38
MS Curriculum & Standards	38 - 44
Employment While a Graduate Student	38
Deficiency Courses	38
Common Grading Scale for all Master of Science courses	38 – 39
Academic Integrity	39
Anatomical Sciences Major Course Requirements	40
Biomedical Professions Major Course Requirements	40 – 41
Life Sciences Research Major Course Requirements	41
Life Sciences Teaching, ITL Major Course Requirements	42
Academic Standards	43 - 44
MS Course Descriptions	44 – 50
Faculty Credential Information	50 – 54
Staff Contact Information	55
Contact Information By Department	55

MS 2015-16 Academic Calendar	56 - 57
DCOM 2015-16 Academic Calendar	58
LMU-CVM 2015-16 Academic Calendar	59
Campus Map	30

UNIVERSITY'S MISSION AND PURPOSE[†]

Lincoln Memorial University is a values-based learning community dedicated to providing educational experiences in the liberal arts and professional studies. The University strives to give students a foundation for a more productive life by upholding the principles of Abraham Lincoln's life: a dedication to individual liberty, responsibility, and improvement; a respect for citizenship; recognition of the intrinsic value of high moral and ethical standards; and a belief in a personal God.

The University is committed to teaching, research, and service. The University's curriculum and commitment to quality instruction at every level are based on the beliefs that graduates must be able to communicate clearly and effectively in an era of rapidly and continuously expanding communication technology, must have an appreciable depth of learning in a field of knowledge, must appreciate and understand the various ways by which we come to know ourselves and the world around us, and must be able to exercise informed judgments.

The University believes that one of the major cornerstones of meaningful existence is service to humanity. By making educational and research opportunities available to students, Lincoln Memorial University seeks to advance life throughout the Appalachian region and beyond through teaching, research and service.

[†]Revised July, 2012; Approved by the Board of Trustees, November 13, 2012.

University Governance and Administration

Lincoln Memorial University is a private, non-profit institution owned and controlled by a self-perpetuating Board of Trustees. Board members are elected on the basis of commitment to the programs and purposes of Lincoln Memorial University. Board members receive no remuneration from but work on behalf of the University. The Board establishes the broad guidelines of philosophy and institutional purpose and names the President to execute those guidelines.

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President of the University

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Dean, Caylor School of Nursing

Martin Sellers, PhD
Dean, School of Arts, Humanities and Social Sciences

Michael Wieting, DO
Interim Dean, DeBusk College of Osteopathic Medicine

Master of Science Mission Statement

The Master of Science (MS) program at LMU is dedicated to providing advanced academic learning in the life sciences through graduate coursework, professional training, and research. Graduates from this degree program are able to independently explore an area of the primary literature of the life sciences, analyze and critique published research reports, and communicate about life sciences in formal oral and written modalities.

This academic program seeks to enhance the learning of four mission-related graduate populations of students:

- Those seeking doctoral-level education in the health-related professions
- Those seeking in-depth and focused study of human anatomy
- Those seeking to complete a thesis research project prior to a dissertation research project in the life sciences
- Those seeking exceptional preparation and licensure to teach in the high-school or community college environment.

This LMU degree program is a collaborative effort among the School of Mathematics and Sciences, the DeBusk College of Osteopathic Medicine (DCOM), the Carter and Moyers School of Education, and the College of Veterinary Medicine. Faculty from these areas work together to provide students with graduate courses and research opportunities.

MS PROGRAM OVERVIEW

The Master of Science (MS) program is a 30 graduate hour minimum full-time program of study designed for college graduates who want to pursue further studies in the realm of life science. With the normal academic credit load, this program may be completed in two semesters. For students lacking pre-requisite courses or for whom the Admissions Committee determines their need to repeat specific courses, this program may require more than two semesters to complete. Students who gain acceptance into DCOM, may complete required courses during their first year of medical school.

Four majors are offered in our MS program:

Anatomical Sciences

Biomedical Professions

Pre-medical track

Pre-Veterinary track

Life Sciences Research

Life Science Teaching Initial Teacher Licensure (ITL)

Each of these majors within the degree program is focused to help you as a student make the most of your graduate education. The programs have experienced oversight that is maintained by a direct program coordinator and admission committees consisting of faculty in the related departments. Courses for your program of study in the MS program are assigned by these committees on an individual student basis considering your academic record and performance in the MS program; the schedule of classes is based on which specific courses will be most beneficial to the student regarding his or her future academic/career goals. In some cases very specific deficiency courses are required and in other cases the student may have a choice. Enrollment in DCOM courses is limited by the standards set forth by the MS program and its policies. These are detailed in this catalog.

Anatomical Sciences (AS)

The Anatomical Sciences (AS) major is designed to assist students who foresee a future that involves working in the anatomy discipline. This can include working alongside an anatomist, teaching anatomy related courses at a community colleges, or pursuing a medical degree. Students will also be prepared to pursue advanced graduate study in anatomy.

LMU's Hamilton Mathematics and Sciences Building houses the Neal Cross Memorial Anatomy Laboratory and model room. This is a state-of-the art human gross anatomy teaching suite. Donor programs allow MS students to have access to study anatomy and take part in graduate research projects such as detailed dissections and plastinations. Additional research and teaching opportunities are also available to students in this major.

The AS major, like Biomedical Professions, will allow students to take DCOM courses alongside first year medical school students. They too can earn between 7 and 15 credits hours that can be applied to their academic career at DCOM if grades of A or B are earned in the program.

Biomedical Professions (BP)

This program is designed to offer students a structured route to future entry into professional school. There are two tracks within this major: one is designed for students aspiring to earn an MD or DO degree, while the other is for students who aspire to earn the D.V.M. degree.

Medical School Track

Among the four MS majors, BP offers the most tailored route for students whose aspirations include medical school. Throughout the year of study, students will enroll in graduate courses along with specific medical school classes at the DeBusk College of Osteopathic Medicine (DCOM). These medical school courses may include classes such as Medical Gross Anatomy,

Histology and Neuroanatomy if the prerequisites are met and there is sufficient capacity in the courses. These courses will be taken alongside first-year DCOM students.

Other significant aspects of the program include the following:

- If a grade of “B” or above is earned in the DCOM courses, students who are accepted into DCOM will not have to repeat the classes during their first year of medical school. This means that those students accepted into DCOM have the possibility of entering their first year of study with 7 – 15 hours of medical school courses already on their transcript, therefore significantly lessening the course load during the OMS-1 year. However, the student should be aware that the Osteopathic Medical School (OMS)-1 academic load during the second medical school semester will be a significant step up in intensity. Therefore the student should be preparing for this by developing excellent time management and study skills.
- Students who maintain a cumulative 3.0 graduate GPA or higher in the fall semester of the BP major and complete their American Association of Osteopathic Medicine Application Service (AACOMAS) application are guaranteed an interview at DCOM in the spring semester. Before the actual interview, an interview workshop is provided along with an individual mock interview with faculty/staff in MS program. Many of the students in the program, will learn about their acceptance into DCOM before the end of the spring semester in the BP program. This acceptance will be contingent on successful completion of the spring semester courses with grades of B or higher. Failure to successfully complete all spring courses may result in rescinded acceptance to DCOM.

Veterinary School Track

Similar to the medical track, this pre-veterinary program is designed to assist students in gaining entry to veterinary schools. Students will have the opportunity to enroll in Veterinary Anatomy I and II alongside first-year CVM students attending LMU’s College of Veterinary Medicine (LMU-CVM).

Other significant aspects of this track include the following:

- If a grade of “B” or above is earned in LMU-CVM courses, students who are accepted into the veterinary school will not have to repeat the classes during their first year at the LMU-CVM. This will allow students who are accepted into the LMU-CVM to enter with 10 earned credits. During their first year in the CVM they will serve as teaching tutors for other first-year CVM students.

- Students who maintain a cumulative 3.0 graduate GPA or higher in the fall semester of the BP pre-veterinary track and apply to LMU-CVM will be granted an interview with the LMU-CVM in the spring semester. Before the official interview mock interviews will be conducted with faculty and staff in order to help prepare students for the interviews.

Life Science Research (LSR)

The Life Sciences Research major is designed for students who wish to earn a PhD or enter the workforce as researchers. Throughout the program students will work on a research project to complete their MS thesis. Core coursework includes Colloquial Principles of Life Science, Research Design & Analysis, and Scholarly Writing in the Life Sciences. Elective courses provide a selection of theory and technique courses to support student thesis research. A limited number of assistantships are available to students who qualify.

Graduate Assistantships

Each year Lincoln Memorial University offers a limited number of graduate assistantship positions when funding is available. When a graduate assistantship is well conceived and executed, it serves as an ideal instrument to facilitate progress toward a graduate degree while assisting with tuition expenses.

Overview

- Before applying for a graduate assistantship, an applicant must have applied for enrollment in a graduate program. All requirements for admission to degree candidacy must be completed before a graduate assistantship position can be awarded.
- To apply for a graduate assistantship, students must complete the application (found on Pathway) and submit two character reference letters (non-relative) to the Office of Academic Affairs, Duke 201. Letters must be signed by the person providing the reference or be sent to graduate.assistant@lmunet.edu from the person's email address.
- Academic or University departments seeking graduate assistants will review applications and conduct interviews. Students will be contacted if a department wishes to interview them for an open position.
- The Office of Academic Affairs will issue an award letter to each student receiving a graduate assistantship. The letter must be signed by all parties before the student can begin work.

Life Science Teaching (LST)

The Life Sciences Teaching major is designed for students seeking exceptional preparation and licensure to teach in the high-school or community college environment. Core coursework includes graduate life science content courses along with courses from the Master of Education curriculum. Standards for admission to this major program detailed below include those necessary to meet requirements for State of Tennessee teaching licensure.

MS ADMISSION REQUIREMENTS & PROCEDURES

Generally policies will follow existing LMU policies for undergraduate and/or master's degree programs with any differences for this degree program noted in this catalog. Any specific differences among the four major tracks of this Master's degree are included below.

Former DCOM students who seek admission must submit two additional letters from DCOM faculty members. These must be submitted in the MS admissions process.

Admission Requirements and Standards

- A. **A completed bachelor degree from an institution with regional accreditation or equivalent verification in the case of international degrees.** Degrees from foreign countries must follow university policies in existence for certifying international degrees and/or credit.

Minimum undergraduate course work in the natural sciences and mathematics:

Mathematics	6 credit hours at the College Algebra level or higher
Biological Sciences	16 credit hours with labs
Chemistry	16 credit hours including 8 credits of Organic Chemistry and labs
Physics	8 credit hours of algebra- or calculus-based with labs

Recommended undergraduate course work (these are pre-requisite courses for certain graduate courses):

Ethics (for LSCI 606 Applied Ethics in the Biomedical Sciences)
Probability & Statistics (for LSCI 604 Graduate Life Sciences Research Design and Analysis)

Note:

For **Life Science Teaching** the following courses are strongly recommended:

Probability and Statistics

Microbiology
Invertebrate Biology
Botany
Comparative Vertebrate Anatomy and Physiology
Biochemistry

Note: For Initial Teacher Licensure, the student must have a combined 48 credit hours in biology course work which includes at least 12 credits of chemistry. Students lacking prerequisite courses for graduate course work in the life sciences will be required to complete these deficiencies which may extend the completion time of this program.

Official Transcripts - Two copies of official transcripts must be submitted for all post-secondary academic work.

Background checks are completed on all students.

B. Standard Test Scores and Grades

Biomedical Professions majors:

Minimum score of 20 on the MCAT (“old”) (medical track)

OR

Applicants submitting scores from the **current MCAT 2015 format** must have a minimum 25th percentile rank of the MCAT total score detailed in the AAMS scoring report

OR

GRE combined minimum scaled score of 300 (verbal + quantitative) and 4.0 analytical writing (**Veterinary Track only**)

AND

Cumulative GPA of 2.75 minimum **OR** science GPA of 3.00

Anatomical Science majors:

Minimum composite score of 20 on the MCAT (“old”)

OR

Applicants submitting scores from the **current MCAT 2015 format** must have a minimum 25th percentile rank of the MCAT total score detailed in the AAMS scoring report

OR

GRE combined minimum scaled score of 300 (verbal + quant.) and minimum 4.0 analytical writing

AND

Cumulative and Science GPA of 3.0

Life Science Research

GRE combined minimum scaled score of 300 (verbal + quantitative) and minimum 4.0 analytical writing

AND

Cumulative GPA of 3.0 minimum **OR** science GPA of 3.0

Life Science Teaching

Cumulative GPA of 2.75 minimum AND science GPA of 3.00

GRE

- Verbal - 144 minimum
- Quantitative – 150 minimum
- Writing – 3.5 minimum

C. Letters of Evaluation

Biomedical Professions, Anatomical Sciences, Life Science Research:

Two letters of evaluation from the applicant's instructors or one committee letter from a health professions advisory committee. At least one letter must be from a natural science instructor.

Life Sciences Teaching ITL:

Two letters from educators addressing the applicant's potential as a science educator, and one letter from a science instructor

D. Transfer credit

A maximum of relevant 6 graduate credit hours by approval only of the program-specific Master of Science Admissions Committee. **The request for transfer of courses MUST be submitted before the first day of classes in the fall semester.**

Program Acceptance

Admissions Committees are established for the four Master of Science majors. When reviewing application files the committee looks at numerous applicant criteria including standardized test score(s), undergraduate coursework, letters of recommendation, and any other pertinent materials that may be included with the file.

Upon acceptance into the Master of Science program, applicants will receive an official packet of materials including an acceptance letter, a program catalog, and any other items that may be deemed necessary. Deadlines regarding program deposits, residential life, immunization records, etc. will be included in the acceptance packet.

Acceptance Deposits

Upon your acceptance into MS it is of the utmost importance that you pay your deposit to LMU in a timely manner. These funds secure your offered seat within the program; your seat is not secured in the limited capacity classes until a deposit is submitted. In order to make this deposit you have two options:

- If you choose to live in LMU housing, you are required to submit a \$500 deposit along with your application for housing. This deposit is refundable at the end of residency providing that certain criteria are met as discussed on the housing application. Mailing information regarding the deposit is on the upper left hand corner of the housing application. If you desire to live on campus, this deposit is due by June 15.
- Students who plan to live off campus must pay a \$500 program deposit. These funds are allocated to your student account and will count toward expenses incurred (i.e. tuition, fees, etc.). If you plan to live off campus, your \$500 deposit is due June 30.

These deposits may be submitted by mail or by telephone. If paying by phone please contact the Cashier's Office at 423.869.6315. Students who are not living on campus and need to pay their deposit via mail may send a check or money order to the following address:

Lincoln Memorial University
Holly Napier
6965 Cumberland Gap Parkway
Harrogate, TN 37752

Tuition and Fees

Tuition for the Master of Science (MS) program in the 2015-2016 academic year is \$26,780. This tuition is split evenly between fall and spring semesters. The tuition includes a minimum of 12 academic credit hours during the fall 2015 semester and at least 12 academic credit hours during the spring 2016 semester. The per-credit rate for less than full-time status students is \$892. Students previously enrolled in the Master of Science degree program who become new OMS-1 DCOM students may complete MS courses toward the MS degree at no additional tuition charge above tuition paid for their OMS-1 year as long as the total credits in courses for both programs do not exceed the maximum number in the typical OMS-1 schedule. Master of Science students who return to complete the degree will be charged the tuition rate in force when they return to complete the required courses for the degree. Students desiring to complete the MS degree in OMS 2 or later will be charged the tuition rate in force when taking the courses. The rate for Life Science Research or Life Science Teaching courses is \$427 per credit hour.

Course Load

Full-time status of a Master of Science graduate student is a minimum of 9 graduate credits in a fall or spring semester or 6 during a summer session. Many Master of Science program students enroll in a total course credit load of 12-16 credits which may include deficiency courses.

Refund Policy

Refund of Institutional Tuition, Room and Board Charges

In the event a student drops one or more classes, withdraws, or is administratively dismissed from the University for disciplinary or for financial reasons after registration is completed and prior to the end of a semester of enrollment, the student's eligibility for a refund of appropriate institutional tuition, room and board charges will be prorated as indicated. A student must complete a Change of Schedule form (obtained from the Office of the Registrar) for dropping one or more classes.

Any situation in which all classes are dropped is considered to be a withdrawal from the University. The student initiates this process by completing a withdrawal form and submitting this to the Registrar's Office.

Should the student fail to complete this process, all semester charges will become immediately due and payable (refer to "Withdrawal from the University").

The official withdrawal process begins in the Office of the Registrar. A withdrawal form must be completed and all the necessary signatures obtained. *Oral requests do not constitute official notification.*

The University's official date of withdrawal used to compute the refund is based on the date the withdrawal form is recorded by the Registrar. Applicable institutional charges for fall and spring semesters will be refunded according to the following schedule:

Through the first official day of classes 100%

After the first official day of classes and during the first week of the semester 90%

During the second week of the semester 75%

During the third week of the semester 50%

During the fourth week of the semester 25%

After the fourth week of the semester 0%

No refund of institutional charges will be made after the fourth week of the semester.

Specific dates affecting the schedule of refunds appear on the Registration Policies page of the electronic class schedule, WebAdvisor, which is available on the LMU web site by selecting the Current Students and Faculty link; and/or the Office of Student Services, the Office of the Registrar, and the Office of Finance.

Refund schedules pertaining to summer are adjusted to the varying length of the terms. They are also available in WebAdvisor by selecting the given term.

Official Withdrawal

Any student withdrawal completed will be reviewed for the official withdrawal date, set forth by the Registrar. If this date falls after the first day of classes, there will be a Return of Title IV (R2T4) calculation done to determine financial aid earned. If a withdrawal is completed prior to the FA disbursement date, and there is aid earned, the aid would be seen as a post withdrawal disbursement and LMU would obtain permission from the student/parent prior to disbursing earned aid. If a withdrawal is completed on or after the FA disbursement date, the aid is adjusted based on the pro rata of the R2T4 calculation given back to us by the FAA Access Return to Title IV Worksheet provided by the Department of Education (DOE). Adjustments are made and refunds sent back to the appropriate program(s), with the DOE, at the time of processing the withdrawal form. If the student is present at the time of processing the withdrawal form, financial aid staff does a counseling session to explain how the calculation is determined and how it affects their responsibility to repay, if applicable. If the student is not present at the time of processing the withdrawal form, the financial aid office notifies the student by certified mail of the adjustment made and any responsibility that lay with the student, at that time. It is stated and understood that after the 60% point of the term a student has earned 100% of aid and in most cases there will not be pending aid, at this point; however, we do an R2T4 calculation to determine a post withdrawal disbursement, if pending aid is present and all conditions are met.

Unofficial Withdrawals

Unofficial Withdrawals are reviewed after grades post for each term. Any student earning all F's is considered an Unofficial Withdrawal. We provide a notification letter to the student asking them to confirm attendance past the 60% point of the term and a timeline in which to provide that documentation. Adequate attendance documentation can be an email statement directly from the instructors stating the student attended past the 60% date, hard copy print outs of online coursework submitted after the 60% date or hard copy tests submitted after the 60% point. If the attendance documentation is not provided, we notify the student, again, via email reminding them of this opportunity. If we do not receive a response, LMU will do an R2T4 calculation, thru FAA Access, using the 50% point of the term as the withdrawal date. Adjustments are made and refunds sent back to the appropriate program(s), with the DOE, at the time of processing the Unofficial Withdrawal student record(s). We then notify the student, via USPS, of the adjustments made via the results of the R2T4 calculation, and we explain why the calculation had to be done and what financial responsibilities lay with the student.

Summer Withdrawals

The official withdrawal process, as set forth by our Registrar's office, is required for withdrawing from a summer semester. Upon receiving a Withdrawal Form for summer, the Financial Aid Office would use the actual start and end dates of the enrolled classes in the R2T4 calculation. At the end of the summer semester, Financial Aid reviews for Unofficial Withdrawals. The credit and refund schedule is dependent upon the length of the term and the course start date. More information can be found on the LMU website's Registrar page.

Refund of Housing Reservation and Damage Deposit

The housing reservation and damage deposit of \$200 is refundable at the end of the student's tenure in campus housing provided no damage or loss has occurred in the student's room, as indicated by a check-out sheet; keys have been returned; and the student has cancelled his/her housing reservation by August 1 for fall semester and by January 1 for spring semester.

If a student has an outstanding account balance with the University, any refundable deposit must first be applied against the student's outstanding account.

If the student's outstanding account balance exceeds the refundable deposit, the student will not be entitled to a refund of the deposit. Cancellation of housing by a resident during the year forfeits the resident's deposit.

A written request for refund must be made to the Director of Residential Life.

Refund of Credit Balance

In the event a combination of grants, scholarships, and/or payments results in a credit balance on the student's account, the Student Accounts Office will refund the credit balance to the student.

All institutional aid must be applied toward tuition, fees, and on-campus room and board expenses. Institutional aid cannot be used to pay for student health insurance fees. All federal, state and institutional grants are credited to the student's account first, and any institutional grants or scholarships are applied to the balance of the student's aid eligibility for the semester. No cash refunds are made from institutional funds.

Financial Aid

Financial Aid in the form of loans is available to MS students. The LMU Financial Aid website is www.lmunet.edu/admissions/finaid.shtml or they may be reached directly at 423.869.6336. The Financial Aid Office is located on the third floor of the DAR building. MS students who do not opt for federal loans often obtain the needed tuition funds through private loans, etc.

Off Campus Authorities

All Locations

- Complaints relating to quality of education or accreditation requirements shall be referred to the Southern Association of Colleges and Schools Commission on Colleges (SACSCOC), (<http://www.sacscoc.org/pdf/081705/complaintpolicy.pdf>).

Tennessee Locations

- Complaints related to the application of state laws or rules related to approval to operate or licensure of a particular professional program within a postsecondary institution shall be referred to the appropriate State Board (i.e., State Boards of Health, State Board of Education, and so on) within the Tennessee State Government and shall be reviewed and handled by that licensing board (<http://www.tn.gov>, and then search for the appropriate division).
- Complaints related to state consumer protection laws (e.g., laws related to fraud or false advertising) shall be referred to the Tennessee Division of Consumer Affairs and shall be reviewed and handled by that Unit (<http://www.tn.gov/consumer/>).

Ewing, Virginia Location

- Complaints regarding institutions of higher education should be directed to:
State Council of Higher Education for Virginia (SCHEV)
Private and Out-of-State Postsecondary Education (POPE)
101 N. 14th Street, Ninth Floor
James Monroe Building
Richmond, VA 23219
<http://www.ag.virginia.gov/consumercomplaintform/consumerComplaintForm.aspx>

Orientations

As an MS student you will be required to attend multiple orientations. The MS Orientation will include **program familiarization**, establishing your fall schedule, finalizing your financial aid and completing the registration process. An orientation for **library resources** will occur in the first semester of the LSCI 603 course. The third mandatory orientation is for students **participating in Medical Gross Anatomy** alongside DCOM OMS-1 students.

STANDING OVERSIGHT COMMITTEES

Master of Science Graduate Council

The MS Graduate Council is the policy making and recommending body for the Master of Science degree program. It is composed of the Program Directors and the MS Administrative Dean. The Recruitment and Student Services Coordinator is an ex officio member. It meets regularly to review program function, admissions status, student academic progress, proposed academic changes, and policy effectiveness. It also serves as the primary appeals committee. Programmatic recommendations flow from this council to the collaborating school or college councils before being considered by the Academic Council, University Cabinet, University President, or Board of Trustees.

Admissions Committees

Admissions Committees – These committees consist of faculty and administration members from the collaborating programs.

For admission to the Biomedical Professions major: two faculty members from DCOM Basic Biomedical Sciences, one LMU-CVM faculty member, the Program Director, and one faculty member from the Department of Biology.

For admission to the Anatomical Science major, two faculty members from DCOM Department of Anatomy and the Program Director.

For admission to the Life Science Research major: two research faculty from DCOM, the Program Director, and two research faculty members from the Department of Biology.

For admission to the Life Science Teaching major: one MEdITL program faculty member from the Carter and Moyers School of Education (SOE), the Program Director, and one faculty member from the Department of Biology.

Thesis Supervisory Committees

These student focused committees function to provide course work and thesis project direction and approval for each individual graduate student in the Life Sciences Research major. Each committee conducts a comprehensive examination of the student after their first semester, reviews and approves the thesis project proposal, reviews and approves the completed thesis document, and conducts the final oral defense of the thesis project. The chair of this committee is typically the major professor who directly supervises the thesis research project. A second member is selected from the graduate faculty and should have reasonably-related knowledge for the research project topic. A third member is selected to complement the knowledge of the other two members and may be chosen from outside of the relevant departments. The appointment of this committee is made by the MS Administrative Dean upon recommendation of the Program Director.

Appeals Committee

This committee exists to resolve any academic matter that arises in the Master of Science program. Members of this committee will be the Master of Science Graduate Council which consists of the MS Administrative Dean and each MS Program Director. Each of these Program Directors holds their position as confirmed by the VPAA, and respective deans. One faculty member from each entity will serve with an alternate member appointed in cases of conflict of interests. Academic appeal decisions are based upon overall academic performance while in the MS program.

Note: The Offices of Admissions for LMU-DCOM and the LMU-CVM will be notified of requested appeals; the need to repeat a course is not looked upon favorably by professional schools. Granted remediation of a course does NOT guarantee consideration or admission to either school even if significantly improved grades are earned upon a second attempt.

MS GENERAL POLICIES AND STANDARDS

Students must earn and maintain a cumulative grade point average (cumGPA) of 3.0 or more. Failing to reach this standard will result in academic probation. Successful completion of the degree program requires a 3.0 GPA. For students in the Life Science Research major, the supervisory committee will review the academic record on a semester-by-semester basis. The supervisory committee also will review thesis project progress each semester. The supervisory committee has the authority to recommend removal of the student from the program. The MS Administrative Dean will provide official notification in such cases.

If the student is completing deficiency courses, the 3.0 GPA performance level includes graduate and undergraduate courses. However, calculation of cumGPA for graduation from the MS degree program does not include undergraduate courses. Participation in elective courses is competitive and students will be selected based on professional and academic performance.

Appeals – In the event that a student wishes to submit an appeal regarding an academic matter, a formal written appeal must be submitted within the specified timeframe. Deadlines for these appeals are published for each academic year. Appeals must be submitted to the MS Administrative Dean or via the MS Recruitment & Student Services Coordinator. Appeals for inclusion of graduate transfer credit must be submitted to the Admissions Committee for the selected major program.

In cases other than for repetition of a course, a disputed course grade, or consideration of graduate transfer credit, the appeals committee is expected to collect information from all

parties to the matter in question, hold a hearing in which parties to the appeal will be invited and notified with at least 48 hours advanced notice, and reach a decision on the matter within 24 hours of the hearing. In the eventuality that more investigation is needed after the hearing, all parties to the matter will be notified of the timeline for reaching a conclusion for the matter. A decision must be reached by no more than one week after the initial hearing. Decisions of this committee will be communicated to the party making the appeal as well as any individuals named in the appeal along with the relevant Deans and the Vice President for Academic Affairs. Final decisions will be communicated no more than 1 week after a hearing. A log of matters and copies of all communication related to an appeal will be maintained by the office of the director of the program in which the appealing student is enrolled.

Attendance - Graduate students in the Master of Science degree program are required to follow the attendance policies of each of the courses in which they are registered.

Medical Leave of Absence – A student may petition to their Program Director, for a medical leave of absence from a Master of Science major program of study in event of a medical condition which prevents normal participation in the required activities of the degree program for more than one week. For a student in the Life Science Research major, the petition should be supported by the supervisory committee affirming that the student is at a stage in their program where they may return and continue the approved thesis research or will be allowed to propose another research topic on return to active status in the program. If the supervisory committee is not supportive of continuation after the medical leave of absence, the student will need to request a different supervisory committee on return to active student status. If a supervisory committee cannot be assembled for the student, the student will be advised to complete a different major in the program or discontinue the Master of Science.

[Lincoln Memorial University Student Complaint Process](#)

Master of Science Program

Lincoln Memorial University provides a number of avenues through which students can address issues of concern such as complaints and grievances. Students should express their concerns as quickly as possible through the appropriate channels. Student requiring assistance with these processes should contact the Dean of Students or Associate Dean of Students in the Office of Student Services. Depending upon a situation, students can address their complaints through the following resources:

Grades (*Student Handbook*)

Academic Issues (*Master of Science Catalog*)

Academic Appeals (*Master of Science Catalog*)

Other Academic Matters (*Master of Science Catalog*)

Non-Academic Appeals (*Student Handbook*)

Financial Aid (*Student Handbook; Master of Science Catalog*)
Sexual Harassment / Sexual Assault / Dating or Relationship Violence (*Student Handbook*)
Discriminatory Conduct (*Student Handbook*)
Student Code of Conduct (*Student Handbook*)
Traffic Appeals (*Parking Handbook*)
Student Rights (*Student Handbook*)
Athletics / NCAA Compliance (*Athletic Handbook*)
• Title IX (<http://lmurailsplitters.com/page.asp?articleID=2152>)
ADA/504 (*Student Handbook*)
General Student Grievances (*Student Handbook*)

- All complaints should be routed through the appropriate complaint/appeals process as outlined above.
- Depending on the nature of complaint, the matter should be brought to the attention of the office directly responsible for that area of the college or university via email with the word **complaint** noted in the subject line.
- For concerns that are not resolved through the informal complaint process, the student is encouraged to file a formal complaint with the Dean of Students using the Formal Student Complaint Form. Complaints and appeals should be well-documented.
- Students are encouraged to move through the appropriate campus supervisory structure and exhaust all campus complaint procedures prior to appealing to any off-campus authority.

Satisfactory Academic Progress (SAP)

LMU General SAP Policy

Satisfactory Academic Progress relating to Financial Aid federal regulations require that all students who receive federal financial aid make progress toward a degree. All colleges must have policies that ensure students are making this progress both qualitatively and quantitatively. At LMU, starting with the fall 2011 semester, we have established the following Satisfactory Academic Progress (SAP) Policy that will be reviewed following each semester, including the summer term.

Qualitative

Students who fail to maintain satisfactory progress may not receive the following types of financial aid: Federal Stafford Loans, Federal PLUS Loans, other aid involving Title IV funds, or any other aid for which satisfactory progress is a requirement. These policies apply only to eligibility to receive financial aid. A student is considered to have made satisfactory academic progress provided he/she passes at least 67% of the cumulative credit hours attempted and has not reached 150% of time enrolled in an academic program (see Maximum Time Frame section).

Students must also earn a certain cumulative Grade Point Average (GPA) determined by their Academic program to maintain financial aid SAP. Students enrolled in a Graduate program (excluding Graduate Nursing, please see that specific SAP Policy) at LMU, must maintain a minimum of a 3.0 GPA. A student whose academic performance drops below the minimum standards will be placed on financial aid warning. A student can retain financial aid while on warning for one semester but must meet Satisfactory Academic Progress by the end of that semester or be placed on Financial Aid Suspension.

Quantitative- Hours Attempted vs Hours Earned

A student is considered to have made satisfactory academic progress provided he/she passes at least 67% of the cumulative credit hours attempted. For instance, a student who attempts 18 credit hours must complete at least 12 of those credit hours to make satisfactory academic progress. A student whose academic performance drops below the minimum standards will be placed on financial aid warning. A student can retain financial aid while on warning for one semester but must meet Satisfactory Academic Progress by the end of that semester or be placed on Financial Aid Suspension.

Quantitative –Maximum Time Frame

No student will be eligible to receive financial aid for more than 150% of the published length of the program. This time is measured by credit hours attempted. For example, a student seeking a MBA degree totaling 36 credit hours cannot receive aid for more than 45 attempted hours ($36 \times 150\% = 54$). Please refer to specific graduate catalogs to see the published length of the program. Transfer credits will be evaluated and those credits that count toward the student's current academic program will count as both attempted and completed hours. Failing a class or withdrawing from a class, whether passing or failing, can affect SAP. Incomplete grades will not count against attempted hours until a grade is recorded or the candidate is withdrawn from the class or classes. Satisfactory academic progress will be reviewed at the end of each semester.

Appeals

Students who are in SAP suspension may appeal this decision to the LMU Financial Aid Appeals Committee. The appeal must be made in writing and explain why the student failed to make SAP and what has changed that will allow the student to make SAP at the next evaluation. This letter should be sent to the Executive Director of Financial Aid, 6965 Cumberland Gap Parkway, Harrogate, TN 37752. The committee will review the appeal along with any additional recommendations from appropriate faculty or staff members to determine if the student will be able to meet SAP standards by the next evaluation. If not, an academic plan can be developed to ensure that the student will be able to meet SAP standards by a specific point in order to graduate from a program. If the committee does not approve the appeal, the student may take classes at his/her own expense to try to regain SAP.

If the appeal is approved, the student will be placed on “Financial Aid Probation” for one semester. At the end of the next semester, the student must be making SAP to continue receiving financial assistance. If any additional appeals are approved beyond one semester, an academic plan must be developed for the student and approved by the academic advisor, division Dean or the Vice President for Academic Affairs. The academic plan must detail exactly what courses are required for the student to complete their intended program of study at LMU.

Notification

All Financial Aid Satisfactory Academic Progress notifications will be sent in two ways: a letter will be sent to the student at the home address and an e-mail notification will be sent to his/her LMU e-mail address. These notifications will be sent no later than four weeks after the end of the academic term reviewed.

Regaining Eligibility

Quantitative-Maximum Time Frame

To regain eligibility, you must graduate and advance to a new academic level.

Quantitative-Hours Attempted vs. Hours Earned

To regain eligibility, take courses at your own expense in a subsequent term or terms and meet the standards according to the cumulative credit hours completion ratio outlined above under the heading Quantitative. Once you have taken the courses and earned passing grades, you will need to notify the Office of Financial Aid to complete a clearance form.

GPA

To regain eligibility, complete courses at your own expense and raise your cumulative GPA to the acceptable standard. Once you have completed the course and raised your GPA, you will need to notify the Office of Financial Aid to evaluate the coursework taken to see if financial aid can be awarded.

Master of Science Satisfactory Academic Progress Policy

At the end of the first semester in the Master of Science program and each subsequent semester if applicable, the student’s grades from graduate course work will be evaluated to determine whether attaining the required 3.0 or higher cumulative grade point average (cumulative GPA) needed for graduation is possible. If it is determined to be numerically impossible to reach this required cumulative GPA level, even with earning the highest grades possible in subsequent course work, the student will be dismissed from the program. This will be calculated based on the typical situation of at least 30 total graduate credit hours to

complete the degree. For example, a student earning a cumulative GPA of less than 1.6 for 12.5 graduate credits cannot reach the required 3.0 cumulative GPA even with earning all “A” grades in the subsequent 17.5 credits. This policy shall not super cede university-wide policies except in defining the manner in which sufficient academic progress is determined in this academic program.

Change of Major

At the end of the first semester after admission to the Master of Science degree program, a student may apply to change their major within the degree program. The student needs to recognize and understand that such a change may require additional course work and thus time to complete the degree. Changes at other points in the program must first be discussed with the Administrative Dean.

Process:

- Submit a Master of Science Change of Major form to the Recruitment and Student Services Coordinator.
- Review and action by the Master of Science Graduate Council.
- The Admissions Committee for the proposed major will review the academic record and stated reasoning of the student applying to change their major. This committee will make a decision to either accept the student into the major or not. Capacity is limited in certain majors so this may be competitive.
- The Admissions Committee will notify the Recruitment and Student Services Coordinator, who will assist the student in any changes to their planned course of student and/or registration for the spring semester.
- If the change of major is not approved, the student will receive notification and explanation and should continue their course of study or seek other educational programs that will better meet their needs.
- Appeals of the decisions will be handled through the Master of Science Graduate Council acting as the Appeals Committee.

Dual Major

Although atypical, a student may desire to earn more than one major in the Master of Science program. To earn the second major, the MS student must complete an additional 15 graduate credit hours not duplicating any required courses for the first major. These additional credit hours must include all additional required courses for the second major plus any non-duplicative elective courses.

Application must be made before the first day of classes of the second semester in the MS program. The Admissions Committee of the second major will review and act on the application immediately. Students already in medical school may not select the dual major option as insufficient time is available to complete the additional courses.

Course Repetition

A course in which the student earns a failing grade may be repeated only one time. A request to repeat form must be submitted by the deadline published in the MS Catalog. The MS Graduate Council will review the request, make a decision, and may forward the request to the department offering the course. The department offering the course will determine capacity in making its final decision. The purpose of repeating a course is to replace the previously earned grade in calculation of the cumulative GPA in order to remove the probationary status and/or determine graduation eligibility. The original grade continues to be reported on the transcript and should also be reported by the student to avoid the consequences of false reporting to any other educational institution.

Participation in DCOM courses

Participation in DCOM courses is dependent on past academic performance, capacity, and adhering to ethical and behavioral standards. Pre-requisites must be met by the student and sufficient capacity must exist to accommodate the student in the course. Students with superior grades have an obvious advantage when being considered for this privilege.

Participation in Research Courses

Capacity for students to participate in research projects is limited by the number and workload of supervisory faculty members in the several departments. Although past scholarly work is a desirable characteristic of a medical school or residency applicant, it is not a requirement. Master of Science students must take advantage of the opportunities to become familiar with faculty expertise and current research activities. The student should request a short meeting to discuss becoming part of these ongoing efforts and then reach a mutual decision to contribute to that faculty member's research team. Depending on the amount of research effort, variable academic credit is available. Students may need to conduct research activities during the summer in order to complete the requirements. Students must realize that scholarly activity is time intensive and that it demands an investment beyond the typical time devoted to lecture or lab courses.

Research Awards

Students may submit their own application or they may nominate another MS student for an LMU MS Research Award. These awards will be given based on the merit of the scholarship completed and may be used to defray expenses of traveling to a regional, national, or international meeting to present the completed scholarly work of the student or team of students. Deadlines and award dates are published in the Academic Calendar of this Catalog. A single award will be made for a team project. The team may decide to send a representative

or split the award among the members allowing more than one member to participate in the target professional meeting. The students should record the award on their CV.

To be considered for an LMU MS Research Award, the student must submit an abstract of the work that has been completed, a letter of evaluation from a graduate faculty member familiar with the work, and information on the meeting for which the student(s) plan to present the work.

The Master of Science Graduate Council, or its assignees, will review all applicants and make the awards. Awards may be granted multiple times each budget year depending on funds available.

General Graduation Requirements

A minimum of 30 credit hours graduate course work and satisfactory completion of all core courses is required for graduation with the Master of Science degree.

The Life Science Research major must be completed within 3 years full-time, or 5 years part-time, after starting the program. Students in the Anatomical Science and Life Science Research majors must present their work at a regional professional meeting at a minimum. Publication or presentation in a national or international context is encouraged.

The student must maintain a cumulative G.P.A. of 3.00 or be placed on academic probation. Failure to meet or exceed this standard of academic progress in the subsequent semester will result in dismissal from the program.

Students are also required to complete all program and university assessments and surveys.

Life Science Teaching ITL Graduation Requirements

Module III

Module III, Enhanced Student Teaching (Enhanced Clinical Practice), **is a required course for all candidates receiving licensure through the Master of Science, Life Science ITL Program.** This semester-long course requires the candidate to demonstrate knowledge, skill, and leadership as a professional. Module III is a time for the candidate to demonstrate their ability to synthesize all program goals and proficiencies while participating in Enhanced Clinical Practice, the culminating experience of the Master of Science, Life Science ITL Program.

Module III continues the focus on the candidate's ability to complete all requirements and meet the Master of Science, Life Science ITL Program goals that are aligned to state, national and professional standards known as CMAS. During clinical practice, full-time teacher candidates are required to student teach for a full semester, a minimum of 15 weeks, assisting the cooperating teacher in all classroom duties and responsibilities. In accordance with the clinical recommendations of the NCATE Blue Ribbon Panel on clinical experience, candidates collaborate within an interactive professional community asking probing questions and seeking advice regarding the teaching and/or learning processes. Implementing a "team teaching" approach between the cooperating teacher and student teacher allows both to develop their skills implementing standards-based and common core objectives.

The candidate's clinical practice replicates the experience of being a teacher, and cooperating teachers fulfill the mentoring role as they give formative and summative feedback to the candidates so they can minimize and/or correct weaknesses. Candidates hone knowledge, skills and dispositions in planning, developing, implementing and evaluating lessons at the grades 6-12 clinical experience site(s). Candidates develop both standards-based and common core instructional lessons, use a variety of instructional strategies while learning to establish and maintain a positive, safe learning environment.

Master of Science, Life Science ITL candidates are introduced to different classroom learning environments and the impact on student self-concept, social interaction, behavior and teaching and learning. Professional development and service learning project requirements are maintained and studies broadened to include diverse classroom management models and development of skills to aid in the implementation of plans and strategies appropriate to teaching diverse learners. Candidates will reflect on grades 6-12 field experiences and develop work samples that demonstrate instructional design, implementation of multiple teaching strategies, student assessment, classroom learning environments and management, and reflective self-assessment. Candidates develop knowledge and leadership skills while learning to structure and manage an inclusive safe learning environment. They must demonstrate enthusiasm for their students and the content they teach and proficient communication skills so they can assist with the development of grade 6-12 students' language skills. Candidates demonstrate their ability to create inclusive learning environments as they plan and teach lessons/units of study that integrate technology, meet the needs of all students, connect learning to real life and future careers, and are based upon state, national and professional standards.

Module III coursework includes the professional core course titled EDUC 591: Enhanced Student Teaching (Enhanced Clinical Practice) and the accompanying seminar. This is a 6 credit hour course **required** for all licensure areas. The required seminar sessions are attended twice per month during the school day. **Attendance is mandatory for all seminar sessions.** Scheduled spring or fall break for the assigned grade 6-12 clinical faculty/school district **does not exempt the student teacher from attending seminar sessions.**

No other course work may be taken by candidates during their Enhanced Clinical Practice semester. In exceptional cases, student teachers may seek the approval of the Program Director to take no more than one additional course during this semester provided: (1) the course does not interfere with the student teacher's full participation in all activities associated with student teaching and (2) no other opportunity exists for the student to take the course before completion of the teacher education program.

- Tennessee Licensure Standards and Induction Guidelines -

Clinical Practice Placement

Candidates seeking 6-12 licensures should have clinical practices in both middle grade (grades 6-8) and high school (grades 9-12) classrooms. Candidates will spend a minimum of 15 weeks in clinical practice with placement beginning and ending dates determined jointly by the Master of Science, Life Science ITL Program Director and the Director of Clinical/Field Placement.

All candidate placements for student teaching will be processed through the MEdITL Program Director and the Director of Field Experiences for MEdITL in cooperation with local school districts. All Enhanced Clinical Practice placements for Master of Science, Life Science ITL candidates in Module III must be approved by the Director of MEd in Initial Teacher Licensure Program, Director of Field Experiences for MEdITL, and the Initial Teacher Licensure Committee. Candidates **are not** to make their own placements unless specifically directed to do so by the MEdITL Program Director. **Candidates should not request placement at any school site in which they have relatives/family members employed or in the same school that their children attend. Candidates should not request to have a relative or family friend serve as their cooperating teacher. ** Final decisions on placement will be made by the Director of the MEdITL program.**

All student teachers will be charged a "clinical practice fee" during their semester of student teaching. **This is a one-time fee.** Those students on financial aid should take this into consideration when completing paperwork for the semester in which student teaching will occur. This fee assessment has been approved by the state and

mandated by local school districts in an attempt to provide a small stipend for cooperating teachers providing aid and instruction above and beyond that described in their district’s professional contract.

PROGRAM COMPLETION AND EXIT

When the candidate has completed EDUC 591: Enhanced Student Teaching (Enhanced Clinical Practice), an exit interview will be scheduled by the Director of Clinical/Field Placement. The following are required for program completion:

1. TBI L1 Criminal Background check on file;
2. Proof of liability insurance on file;
3. Proof of current CPR certification on file;
4. All testing requirements met and proof on file with the Director of Teacher Certification/Testing;
5. Successful completion of all required coursework and Teacher Work Samples;
6. Successful completion of Enhanced Clinical Practice, consisting of a minimum of 15 weeks working in in two diverse placements;
7. Successful completion of Professional Portfolio at Exit Interview with score of 80% or above;
8. Grade of “P” for EDUC 591: Enhanced Student Teaching (Enhanced Clinical Practice);
9. Recommendation for approval to the Initial Teacher Licensure Committee by the MEDITL Program Director, the MEDITL Director of Field Experience, Director of Clinical/Field Placement for completion of the Initial Teacher Licensure Program, and eligibility for application for licensure;
10. Application for licensure completed and filed with the Director of Teacher Certification/Testing.

Upon successful program completion, the Director of Teacher Certification/Testing will submit the candidate’s completed applications to the Tennessee Department of Education for licensure.

Director of Teacher Certification/Testing

Teacher candidates seeking teacher licensure must meet all testing requirements specified by the Tennessee State Board of Education. The State of Tennessee forbids certification without passing required Praxis II tests. Those tests required are determined by subject area in which you will be receiving certification. Check your Evaluated Transcript Analysis form for specific testing requirements.

The Director of Teacher Certification/Testing located in the Business/Education Building, Room 214, on the Harrogate campus, provides answers and assistance to Initial Teacher Licensure candidates in regard to testing requirements. Candidates may consult with the Director of Certification/Licensure for specific requirements for testing. The Educational Testing Service (ETS) controls the PRAXIS Series tests required for Teacher Education. Registration booklets, tests at a glance, and information are available to candidates at www.ets.org.

Tests Required for Licensure Area, Effective September 1, 2013

To Be Certified in	You Need to Take	CDT Code	Qualifying Score
Admission to Master of Science, Initial Teacher Licensure program	<p style="text-align: center;">GRE</p> <ul style="list-style-type: none"> • Verbal • Quantitative • Writing 	N/A	144 150 3.5
All teaching licenses	Principles of Learning and Teaching: 7-12	5624	155

****Tests Required for All Licensure Areas, Effective September 1, 2013**

Tests Required for Specific Licensure Areas

To Be Certified in	You Need to Take	CDT Code	Qualifying Score
Biology 7-12	Biology: Content Knowledge	5235	148

Other Policies

Existing policies for LMU graduate programs are in effect for the Life Science Teaching ITL major with those in force for the Master of Science and Master of Education, ITL having precedence. In specific cases of conflict, the MS Graduate Council will draft specific policies for this major.

EDUC 570	Introduction to Teaching and Learning (6)
EDUC 571	Extending and Refining Knowledge of Teaching and Learning (6)
EDUC 591	Enhanced Student Teaching (6)

Other Policies

Existing policies for LMU graduate programs are in effect for the Life Science Teaching ITL major with those in force for the Master of Science and Master of Education, ITL having precedence. In specific cases of conflict, the MS Graduate Council will draft specific policies for this major.

MS STUDENT SERVICES & CAMPUS LIFE

Conduct Policy

Graduate students are expected to conduct themselves at a standard of professionalism that is significantly higher than the minimum standards of behavior set forth in the LMU Student Handbook. The standards of conduct set forth in the LMU Student Handbook are the minimum for Master of Science students and failure to comply will result in the stated consequences.

Professionalism

Professionalism in behavior and attitude is expected of all students and faculty. If the student has questions or concerns about specific expectations and/or behaviors, these may be addressed to respected student leaders, faculty members, program directors, department chairs, or deans.

Housing / Residential Life

Your application for campus housing is included with your acceptance packet materials. You will be given the option of living in an apartment style dorm on campus or in University Inn, which is approximately two miles from campus. Lee Wilkerson is the Director of Residence Life and may be reached at 423.869.6294 or via email at lee.wilkerson@LMU.net. More information is also available online at www.lmunet.edu/campuslife/residence. The Residential Life office is located on the first floor of Dishner Hall. **As mentioned previously, if you plan to utilize campus housing, your \$500 deposit is due by June 15th.**

Dining Options

The campus cafeteria is located on the 1st floor of the Student Center. Meal plans are available for all students. Additional information regarding various meal plans and their costs can be found at www.lincolnmemorialuniversitydining.com/plans.html. Campus is also home to WOW (World of Wings) and Campus Grounds, which is a coffee bar. Both are located on the 2nd floor of the Student Center.

WebAdvisor

WebAdvisor is a web-based information management tool that allows students to access Lincoln Memorial University's administrative database. Information/functions available through WebAdvisor include Search for Classes, Student Profile, Class Schedule, Grades, Student Account, and Financial Aid. The student account with the Finance Office must be paid in full and Perkins student loans must be in a current non-defaulted status in order for the candidate to access his/her academic grades on WebAdvisor. To access WebAdvisor on the Internet from LMU's web site, go to <https://webadvisor.lmunet.edu>. Each student is assigned a unique username and temporary password (which must be changed upon first log-in to WebAdvisor). **It is the responsibility of each student to ensure that his/her password remains confidential. Lincoln Memorial University does not accept responsibility for any password-related breach of security. The student has the option to decline the assignment of a username and password to access WebAdvisor.**

Library Services

The Carnegie-Vincent Library offers services for all graduate students through library terminals located at all off-campus sites, and/or through Internet access to on campus databases. The Library houses two computer labs equipped with high speed Internet;

wireless access is available throughout the building. Collections total more than 333,284 items, including traditional and electronic books, electronic journals, bound periodicals, software, microfilm, and audiovisual materials.

Students are given procedures by library personnel and instructors at the beginning of each semester. During the academic year, the library is open from 8 a.m. to midnight Monday through Thursday; 8 a.m. to 4:30 p.m. on Friday; 10 a.m. to 5 p.m. on Saturday and 2 p.m. to midnight on Sunday. The Lon and Elizabeth Parr Reed Health Sciences Library opened on the second floor of the Carnegie-Vincent Library in the fall of 2006; the health sciences collections are housed within the medical library.

Family Educational Rights and Privacy Act (FERPA)

The University complies with the provisions of the Family Educational Rights and Privacy Act, 1974, as amended. This law maintains that the institution will provide for the confidentiality of candidate's education records. No one outside the institution shall have access to nor will LMU disclose any information from students' educational records without the written consent of students except to personnel within the institution, to officials of other institutions in which students seek to enroll, to persons or organizations providing candidates financial aid, to accrediting agencies carrying out their accreditation function, to persons in compliance with a judicial order, and to persons in an emergency in order to protect the health or safety of students or other persons. All these exceptions are permitted under the Act. At its discretion, LMU may provide Directory Information in accordance with the provision of the Act to include: student name, address, telephone number, major field of study, dates of attendance, degrees and awards received, the most recent previous educational agency or institution attended by the student, participation in officially recognized activities and sports, and weight and height of members of athletic teams. Currently enrolled students may withhold disclosure in writing to the attention of the Registrar. Students may not inspect and review financial information submitted by their parents; confidential letters and recommendations associated with admissions, employment or job placement, or honors to which they have waived their rights of inspection and review; or educational records containing information about more than one student, in which case LMU will permit access only to that part of the record which pertains to the inquiring student. Lincoln Memorial University maintains a list of all persons except other college officials who have received a copy of the student's educational record. A copy of the LMU institutional policy on the release of educational records is on file in the President's Office and the Registrar's Office.

ADA Statement

As a rule, all students must read and comply with standards of the LMU Student Handbook and LMU catalog. Any candidate seeking assistance in accordance with the Americans Disabilities Act (1990 as amended) should contact his/her instructor and the LMU ADA Coordinator, Dr. Dan Graves, with regard to required documentation and in order to make appropriate arrangements. Contact information: dan.graves@LMU.net.edu and/or 423-869-

6267 (800-325-0900, ext. 6267). The office is located on the first floor of the Business Education Building, room 104, on the main campus in Harrogate.

MS CURRICULUM & STANDARDS

Employment while a Graduate Student

The curriculum of the MS at LMU is designed to enhance a student's academic qualifications. All classes are preparatory coursework for professional school and other post-graduate goals. It is strongly recommended that students are not employed during the duration of the program. This ensures that they will be able to focus 100% upon their studies.

Deficiency Courses

Required undergraduate deficiency coursework is determined by the designated MS program Admissions Committee at the time of admission. This coursework will include courses in order to complete any deficiencies or pre-requisites. Key science courses in which the student previously earned grades of C or D are typically required to be repeated in order to improve the academic portfolio of the student and to provide a foundation for the subsequent courses in the MS curriculum. Again, completing required deficiency courses will extend the time required to complete the MS degree. The student may complete deficiency courses prior to beginning the MS program as long as transcripts are submitted which demonstrate the deficiency has been filled.

Grading Scale for Master of Science Courses

- A** = 90.51 - 100%; expected student learning outcomes were demonstrated by superior quality student work in all aspects of the course
- B** = 80.51 - 90.50%; expected student learning outcomes were demonstrated by better than average quality of student work in the course
- C** = 70 – 80.5%; expected student learning outcomes were demonstrated in student work
- F** = 69.99 % or less; expected student learning outcomes were not demonstrated in student work

Academic Integrity†

It is the aim of the faculty of Lincoln Memorial University to foster a spirit of complete honesty and a high standard of academic integrity. The attempt to present as one's own the work of others is regarded by the faculty and administration as a very serious offense and renders the offender liable to severe consequences and possible suspension.

Cheating: dishonesty of any kind on examinations or written assignments, unauthorized possession of examination questions, the use of unauthorized notes during an examination, obtaining information during an examination from another student, assisting others to cheat, altering grade records, or illegally entering an office are instances of cheating.

Plagiarism: offering the work of another as one's own without proper acknowledgment is plagiarism; therefore, any student who fails to give credit for quotations or essentially identical material taken from books, magazines, encyclopedias, web sources or other reference works, or from the themes, reports, or other writing of a fellow student has committed plagiarism.

† Sourced from the 2014-2015 LMU Undergraduate Catalog pp28-29

Faculty may define more specific standards of academic integrity in each specific course along with consequences, up to failure in the course and dismissal from the university for violated those standards. Many will expect written works to be submitted via TurnItIn accessed in the course Blackboard site.

Anatomical Sciences Major

Required Courses	
ANAT 604	Intro to Radiographic Anat. & Clinical Imaging (3)
†ANAT 614	Evolutionary and Comparative Anatomy
ANAT 683	Graduate Anatomy Project (3)
ANAT 701	Medical Gross Anatomy (MGA) (7)
ANAT 715	Neuroanatomy (3)
LSCI 603	Colloquial Principles of Life Science x 2 (1)
LSCI 604	Grad. Life Sci. Research Design & Analysis (3)

Electives Courses	
†ANAT 603	Meth. of Curriculum Development and Teaching Human Gross Anatomy (3)
ANAT 653	Spec. Topics in Clinical Anatomy (1-3)
ANAT 699	Medical Gross Anatomy Dissection (3)
BCHM 503	Advanced Cellular Biochemistry (3)
LSCI 503	Adv. Molecular Genetics & Cell Biol. (3)
LSCI 504	Adv. Techniques for Molecular Biology (2)
LSCI 506	Microscopic Imaging Theory & Tech. (2)
LSCI 507	Life Sciences Research Instrumentation (2)
LSCI 508	Techniques of Physiological Research (2)
LSCI 606	Appl. Ethics in Biomedical Sciences (3)
LSCI 693	Life Sciences Thesis Research (1-9)
ANAT 714	Medical Histology (4)

† Students seeking a career in teaching or academic medicine should substitute ANAT 603 for ANAT 614.

Biomedical Professions Major

Pre-Medical Option

Required Courses	
ANAT 701	Medical Gross Anatomy (MGA) (7)
BCHM 503	Advanced Cellular Biochemistry (3)
LSCI 503	Adv. Molecular Genetics & Cell Biology (3)
LSCI 603	Colloquial Principles of Life Science x2 (1)
LSCI 604	Grad. Life Sci. Research Design & Analysis (3)
LSCI 606	Applied Ethics in Biomedical Sciences (3)

Elective Courses	
LSCI 504	Adv. Techniques for Molecular Biology (2)
LSCI 506	Microscopic Imaging Theory & Tech. (2)
LSCI 507	Life Sciences Research Instrumentation (2)
LSCI 508	Techniques of Physiological Research (2)
LSCI 683	Life Science Grad. Research Project (3)
ANAT 699	Medical Gross Anatomy Dissection (3)
ANAT 714	Medical Histology (4)
ANAT 715	Neuroanatomy (3)

Pre-Veterinary Option

Required Courses	
BCHM 503	Advanced Cellular Biochemistry (3)
LSCI 503	Adv. Molecular Genetics & Cell Biology (3)
LSCI 603	Colloquial Principles of Life Science x2 (1)
LSCI 604	Grad. Life Sci. Research Design & Analysis (3)
LSCI 606	Applied Ethics in Biomedical Sciences (3)
VANT 710	Veterinary Anatomy I (5)
VANT 720	Veterinary Anatomy II (5)

Elective Courses	
LSCI 504	Adv. Techniques for Molecular Biology (2)
LSCI 506	Microscopic Imaging Theory & Tech. (2)
LSCI 507	Life Sciences Research Instrumentation (2)
LSCI 508	Techniques of Physiological Research (2)
LSCI 683	Life Science Grad. Research Project (3)
ANAT 699	Medical Gross Anatomy Dissection (3)
ANAT 714	Medical Histology (4)
ANAT 715	Neuroanatomy (3)

Life Science Research Major

Required Courses	
LSCI 603	Colloquial Principles of Life Science x2 (1)
LSCI 604	Grad. Life Sci. Research Design & Analysis (3)
LSCI 605	Scholarly Writing in Life Science (2)
LSCI 693	Life Science Thesis Research (1 - 9)

Elective Courses	
BCHM 503	Advanced Cellular Biochemistry (3)
LSCI 503	Adv. Molecular Genetics & Cell Biol. (3)
LSCI 504	Adv. Techniques for Molecular Biology (2)
LSCI 505	Advance Ecology & Field Biology (3)
LSCI 506	Microscopic Imaging Theory & Tech. (2)
LSCI 507	Life Sciences Research Instrumentation (3)
LSCI 508	Techniques of Physiological Research (2)
LSCI 606	Applied Ethics in Biomedical Sciences (3)
LSCI 653	Life Science Grad. Special Topics (1 - 3)
LSCI 683	Life Science Grad. Research Project (1 - 3)

Supervisory committee will determine exact courses for each student.

Life Sciences Teaching, ITL Major - (38 total hours)

Required Courses	Along with prerequisite courses for the degree program meeting the content and professional course requirements for initial teacher licensure.
BCHM 503	Advanced Cellular Biochemistry (3)
LSCI 503	Advanced Molecular Genetics & Cell Biology (3)
LSCI 505	Advanced Ecology (3)
LSCI 509	Advanced Botany (3)
LSCI 603	Colloquial Principles of Life Science x2 (1)
LSCI 604	Graduate Life Science Research Design and Analysis (3)
LSCI 613	Life Sciences Meth. of Curriculum Development and Instruction (3)
EDUC 570	Introduction to Teaching and Learning (6)
EDUC 571	Extending and Refining Knowledge of Teaching and Learning (6)
EDUC 591	Enhanced Student Teaching (6)

Academic Standards

The academic standards of MS are clearly defined and bulleted below. These standards are designed to ensure that students are successful in their studies, both in MS and in their future graduate or professional school experiences. **They are strictly enforced and will not be compromised.**

- No students will be able to enroll in any Masters of Business Administration courses while taking MS courses. Students accepted into the DO-MBA program must take the MBA courses in the summer following their first two MS semesters.
- MS course plans are developed by the major-related Admissions Committee upon a student's acceptance to the program. This curriculum will consist of any deficiency courses† deemed as necessary by the committee. You may be advised to retake courses that you previously completed in your undergraduate studies. In this instance the committee feels that your application package for medical school will be stronger with the repeated course(s). You must take the courses assigned to you by the Admissions Committee and Program Director.
- The admissions committees for the majors and the Program Director will determine the courses for each student in their program. Each Supervisory Committee will determine the courses for their Life Science Research student.
- In order to enroll in DCOM classes in the spring semester students must meet academic performance requirements. **If a student earns a grade lower than 80% and/or a letter grade less than a "B" in either their undergraduate, graduate or DCOM classes they will not be permitted to take DCOM classes in the spring semester.**
- In order to enroll in LMU-CVM classes in the spring semester students must meet academic performance requirements. **If a student earns a grade lower than 80% and/or a letter grade less than a "B" in any of their undergraduate, graduate or LMU-CVM courses they will not be permitted to take LMU-CVM classes in the spring semester.**
- Failure to achieve a cumulative 3.0 or higher GPA in the fall semester will result in the loss of your DCOM or LMU-CVM interview.
- Students who do not maintain a 3.0 GPA in the fall semester will be placed on academic Probation. **Failure to maintain a 3.0 GPA by the end of the second semester, or receiving a grade lower than C in either semester, may result in dismissal from the Master of Science program as determined by university policy.**

†

Potential Deficiency Coursework

BIOL 315 Molecular Genetics	3 credit hours
BIOL 360 Immunology	3 credit hours
BIOL 441 Biochemistry	4 credit hours
MATH 270 Probability & Statistics	3 credit hours
PHIL 420 Ethics	3 credit hours
PHIL 430 Medical Ethics	3 credit hours
SCI 394 Natural Science Enhancement	3 credit hours

MS COURSE DESCRIPTIONS

The following courses may be offered in the MS program. **Classes may be modified at the discretion of the program coordinators and/or school dean.**

Graduate Course Descriptions

ANAT 603 Methods of Curriculum Development and Teaching Human Gross Anatomy (3 credit hours) This course provides an analysis of curriculum development and methods for aligning course content to goals and evaluation procedures. The philosophical, historical, and psychological foundations of curriculum will be explored to help students better understand how curriculum models might be utilized in an ever changing and emerging educational environment. Topics will include Gross/Developmental, microscopic and neuroanatomy. Pre-requisites: ANAT 701, 714, 715.

ANAT 604 Introduction to Radiographic Anatomy and Clinical Imaging (3 credit hours) This unit provides an understanding of the basic anatomy of the head and neck, thorax, abdomen and pelvis, as well as the limbs. Radiographic images, cross-sectional imaging software, and diagrams are used to support the learning process. Pre-Requisites: ANAT 701 and 714.

ANAT 614 Evolutionary and Comparative Anatomy (3 credit hours) This course will explore hypotheses that attempt to explain how arboreal apes evolved into terrestrial humans, and how the earliest hominins (human ancestors) evolved into modern *H. sapiens*. Special emphasis will be placed upon anatomical structures that are especially clinically relevant so that students begin to understand evolution's relevance to medicine. Content will be delivered through traditional lectures and textbook readings that are supplemented with readings from the peer-reviewed original literature, as well as hands-on laboratory exercises. Pre-Requisite: ANAT 701

ANAT 653 Special Topics in Clinical Anatomy (1-3 credit hours) This course is an independent study in which the student will conduct readings and engage in weekly conferences with a specified faculty member. Depending on the topic, students may complete a course project. This course may be repeated with a different topic. Faculty permission required. Prerequisite: admission to the Master of Science program and any additional specific requirements for the topic.

ANAT 683 Graduate Anatomy Project (1 - 6 credit hours)

The graduate student conducts anatomical research under the supervision of a graduate research mentor. A written research report is required to complete the course. May be repeated for credit. Pre-Requisites: Admission to the Master of Science program and permission of instructor.

ANAT 699 Medical Gross Anatomy Dissection (3 credit hours)

A graduate level course designed for the continued study of medical gross anatomy by method of full human dissection. Students will begin with basic dissection techniques and advance to more detailed methods. All sections of human anatomy will be covered i.e. musculoskeletal, thorax, abdomen, pelvis, neck and head. Evaluation will be based on a performance grading rubric. Pre-Requisite: Completion of ANAT 701 with a final grade of "B" or higher.

ANAT 701 Medical Gross Anatomy (7 credit hours)

Medical Gross Anatomy is the study of the body's structure. The course is organized by the four major body regions: upper limb; back and lower limb; thorax, abdomen and pelvis; and head and neck. Laboratory prosections and dissections will be utilized throughout the entire course. Supplemental lectures and tutorials will also be given. Computer-aided instruction will be used to help students learning anatomy. The student is expected to learn anatomical terminology, three-dimensional, radiological and live (palpatory) anatomy. Throughout the course students will be challenged to relate the anatomy to solving clinical problems. The latter is an integral part of the anatomy curriculum. Students will be evaluated by a series of five written examinations and five laboratory practical exams. Pre-Requisites: Admission to the Master of Science, Biomedical Professions or Anatomical Sciences Program. Fall.

ANAT 714 Medical Histology (4 credit hours)

Medical Histology I is designed to give students a foundation of the basic structural and functional organization of cells and tissues in the human body. Histology I focuses on the histologic study and microscopic anatomy of basic tissue types. This course is taken during the first semester of the first year of medical school. The understanding of the normal histology presented in this course is critical for the student's ability to: (1) envision the cellular/tissue structures associated with the biochemical and physiological processes explained in other courses, and (2) identify and comprehend the abnormal histology presented in Pathology. Pre-Requisites: Admission to the Master of Science, Biomedical Professions or Anatomical Sciences Program. Offered as an elective when available.

ANAT 715 Neuroanatomy (3 credit hours)

This course provides a survey of the neuroanatomy and systems physiology of the central, peripheral and autonomic nervous systems. There are two major goals for this course. By the

end of the course, using knowledge of neuroanatomy and neurophysiology, the student will be able to: 1) explain the reasoning for each step of the neurological exam, and 2) explain the mechanisms underlying a neurological patient's signs and symptoms. Pre-Requisites: Successful completion (grade of B or higher) of ANAT 701 Medical Gross Anatomy Spring.

BCHM 503 Advanced Cellular Biochemistry (3 credit hours)

This course will provide an advanced focus on 1) biomolecules (amino acids, protein structure and folding, protein function with emphasis on hemoglobin and myoglobin, carbohydrate, lipid and membrane structure and function); 2) enzyme kinetics and regulation of enzyme activity; and 3) metabolism of carbohydrates, lipids, amino acids and nucleotides. Each will be related to theme of regulation and integration of these metabolic pathways and how they differ in the muscle and the liver. Students are expected to present and discuss at least one recent paper from the primary literature relevant to the course topics. Pre-Requisites: Admission to the Master of Science program and satisfactory completion of an upper-level undergraduate biochemistry course.

EDUC 570 Introduction for Teaching and Learning (6 credit hours)

This course includes a study of concepts essential to becoming a teacher leader. Basic and advanced strategies in curriculum, instruction, assessment, current research, technology, diversity, leadership, and philosophy are addressed. This course is Module I in the Master of Education – Initial Teacher Licensure program.

EDUC 571 Extending and Refining Knowledge of Teaching and Learning (6 credit hours)

This course focuses on the role of the teacher as leader. Candidates demonstrate their understanding of the teacher as leader role by applying relevant concepts to the development of an interdisciplinary unit of study and a personal philosophy statement. This course is Module II in the Master of Education – Initial Teacher Licensure program. Prerequisite: EDUC 570.

EDUC 591 Enhanced Student Teaching (6 credit hours)

This course provides full-time teaching experience in a public 5-12 classroom setting under the direction of a mentoring classroom teacher and a university supervisor. Placement will be arranged by the Program Director in consultation with faculty. Bi-monthly seminars are required. Student teaching is required for all candidates seeking licensure through the Master of Education – Initial Teacher Licensure program. Before registering for this course, candidates must have completed and passed EDUC 570/571, passed all Praxis exams and taken and passed all undergraduate courses required for licensure. This course is Module III in the Master of Education – Initial Teacher Licensure program.

LSCI 503 Advanced Molecular Genetics and Cell Biology (3 credit hours)

This course is an in-depth coverage of Eukaryotic and Prokaryotic molecular cell biology. Topics include structure and utilization of the organismal genome; nuclear and cytoplasmic division; membrane structure, transport, and compartment dynamics; cell communication; cell-cycle regulation; cytoskeletal structure and dynamics; cellular aspects of multicellular development and apoptosis. Assigned readings in current primary literature will be used to extend learning of topics in this course. This course has a required critical analysis paper. Pre-Requisites: Admission to the Master of Science program and satisfactory completion of an undergraduate genetics course.

LSCI 504 Advanced Techniques for Molecular Biology (2 credit hours)

This course integrates theoretical underpinnings of contemporary molecular techniques with applied skills using those techniques. Each student is expected to successfully perform each technique and create a written report the results using publication standards of a current refereed journal. The actual menu of techniques may vary depending on the students' areas of interest. Typically techniques will include PCR, bacterial transformation, advanced agarose and polyacrylamide electrophoresis, Western, Southern, and/or Northern blotting, ELISA, or animal tissue culture. Pre-Requisites: Admission to the Master of Science program and satisfactory completion of an undergraduate genetics course.

LSCI 505 Advanced Ecology and Field Biology (3 credit hours)

This course entails an in-depth examination of current ecological concepts and methods via a review of both classical and contemporary landmark peer-reviewed literature. Major ecological principles and their applicability across various ecological systems and biological hierarchical scales will be critically discussed. The course will also address experimental design and implementation as well as data analyses and interpretation for field experimentation. The student will conduct a primary literature review, write a paper, and give an oral presentation on an ecological topic upon approval by the instructor. Pre-Requisites: Admission to the Master of Science program and satisfactory completion of an undergraduate ecology and statistics course.

LSCI 506 Microscopic Imaging Theory and Techniques (2 credit hours)

This course will address light, electron, atomic force, and confocal microscopy as complimentary study methods. The history of microscopy will allow comparison and contrasts of light and electron optics. The focus of the course will be on advanced imaging techniques, especially electron microscopy. Electron paths will be followed from filament generation of primary electrons, focusing electrons through the column, to specimen interactions generating secondary and backscattered electrons, and X-rays. Techniques will include sample fixation, dehydration, mounting, coating and storage for high and low vacuum systems. A discussion of X-ray microanalysis will show the quantitative side of advanced imaging. Students will gain hands-on experience with scanning electron microscopy. This

course has complimentary lecture and lab assignments. Pre-Requisites: Admission to the Master of Science program.

LSCI 507 Life Sciences Research Instrumentation (2 credit hours)

This course introduces students to analytical technology platforms used in life sciences molecular research. The course will review specific technologies, online databases, online calculators, and primary literature review strategies. The course will include significant laboratory instruction each week with advanced orientation to technologies including mass spectrometry, NMR, PCR, and cell fractionation. Students will be introduced to protocols for obtaining and preparing biological materials for analysis as well as relating molecular characterizations to the genome and metabolism. Critical review of the literature, including assigned readings, will be a key element to all aspects of the course. Two papers are required: a research methodology review and a grant proposal. Pre-Requisites: Admission to the Master of Science program.

LSCI 508 Techniques in Physiological Research (2 credit hours)

This course will introduce well-accepted methods, rationale and limitations for evaluating and array of functions in humans and animals. This course will provide students with the skills necessary to construct solid research designs for research applications, and the foundation required to critically review studies in the field of physiology. Pre-Requisites: Admission to the Master of Science program and satisfactory completion of an upper-level biochemistry course.

LSCI 509 Advanced Botany (3 credit hours)

This course emphasizes structural, developmental, and molecular aspects in comparing major phylogenetic groups of plants. Recent and classic primary literature research is included. Pre-requisites: Upper-level undergraduate botany and genetics courses.

LSCI 603 Colloquial Principles of Life Science (1 credit hour)

Selected diverse articles from the primary literature of the life sciences are critically presented and discussed. Attendance required. Course may be repeated for credit. Pre-Requisites: Admission to the Master of Science program.

LSCI 604 Graduate Life Science Research Design and Analysis (3 credit hours)

This course covers the principles and applications of research design in the life sciences. This includes framing and articulating a research question, creating testable hypotheses, collecting valid data, approaches to data analyses, and presentation of results. Examples from the primary literature will be discussed and evaluated. Pre-Requisites: Admission to the Master of Science program and satisfactory completion of an undergraduate statistics course.

LSCI 605 Scholarly Writing in Life Science (2 credit hours)

This course focuses on formal scientific writing. It emphasizes concise communication of the research process. It includes both written and oral presentations of previous relevant background studies, statement of the research question, detailing of materials and methods, linkage of claims, warrants, and evidence, and concluding discussions. A written research proposal draft is required for completion of this course. Pre-Requisites: LSCI 604 and recommendation of supervisory committee.

LSCI 606 Applied Ethics in the Biomedical Sciences (3 credit hours)

Applied Ethics is the inquiry from the standpoint of moral philosophy into practical decision making. The focus of the course will concern ethical issues in relation to research and practice in the biomedical sciences. The course's instructional format will include a combination of lecture, video, small group discussion, and seminar. It will also include independent study of a focused topic selected by the student in consultation with their supervisor. The course will be primarily "Case-Based" covering a range of topics with the emphasis on ethical decision-making. Ethical theory will be discussed in relation to making the most reasoned and informed argument for practical courses of action. Special attention will be given to the ethical dimensions of research involving human and non-human subjects. **Pre-Requisites:** Admission into the Master of Science Program and at least one prior undergraduate course in ethics.

LSCI 613 Methods of Life Sciences Curriculum Development and Teaching (3 credit hours)

A graduate level methodology course which integrates analyses of teaching and learning research findings with application to classroom and laboratory curriculum design and assessment for the life sciences. Methods of instruction at the secondary level are refined in application for life science content, skills and technology. A laboratory component is included. Pre-requisites: Admission to the Master of Science, Life Science Teaching major; EDUC 570, LSCI 603.

LSCI 653 Life Science Graduate Special Topics (1-3 credit hours)

Various specific life sciences topics are covered which include in-depth presentation, analysis and discussion of the related primary literature. May be repeated with a different topic. Pre-Requisites: Admission to the Master of Science program and permission of instructor.

LSCI 683 Life Science Graduate Research Project (1-6 credit hours)

The graduate student conducts life science research under the supervision of a graduate research mentor. A written research report is required to complete the course. May be repeated for credit. Pre-Requisites: Admission to the Master of Science program and permission of instructor.

LSCI 693 Life Science Thesis Research (1-9 credit hours)

The graduate student conducts life science research under the supervision of a graduate research mentor for completion of the approved Master of Science thesis proposal. May be repeated for credit at the discretion of the supervising committee. By permission of supervising committee only. Pass/Fail.

VANT 710 Veterinary Anatomy I (5 credit hours)

The dog and cat will serve as the primary models for studying the anatomy of the body which is vital to matriculate through the veterinary curriculum in preparation to understand the principals of practicing veterinary medicine and entering the medical profession. All anatomical concepts will be studied as systems, as well as, correlated to one another and with topographical/regional anatomy. To encourage student participation in the learning process, information exchange periods precede most labs. Lecture 4.5 Lab 1.0. Pre-Requisites: Admission to the Master of Science, Biomedical Professions Program Pre-Vet option. Fall.

VANT 720 Veterinary Anatomy II (5 credit hours)

The pony will serve as the primary model for studying large animal anatomy and for comparing equine anatomy with small animal anatomy. Large animal anatomy of the horse, large and small ruminants and the pig which is vital to matriculate through the veterinary curriculum in preparation to understand the principals of practicing veterinary medicine and entering the medical profession will be pursued. Anatomical concepts will be studied of the various regions of the body and will be correlated with the systemic and with topographical and other regional anatomy. To encourage student participation in the learning process, information exchange periods will precede most labs. Lecture 4.5 Lab 1.0. Pre-Requisites: Successful completion of CVM 710. Spring.

FACULTY/STAFF INFORMATION

Faculty

While part-time faculty members make valuable contributions to the teaching and learning at Lincoln Memorial University, only full-time employees holding faculty rank in academic schools offering degrees are included in this catalog.

Barnes, Tammy

Assistant Professor of Education

EdD (Educational Leadership and Policy Analysis), East Tennessee State University

MEd (Educational Technology and Media), East Tennessee State University

BS (Education and Psychology), East Tennessee State University

Bassett, Casey

Associate Professor, Anatomy/Histology
Chair, Department of Molecular Sciences
PhD Cellular & Molecular Pathology, Vanderbilt University
BS Biochemistry, Tennessee Technological University

Burchette Thompson, Elizabeth

Dean, Allied Health Sciences
Assistant Professor, Veterinary Technology
DVM, University of Tennessee

Colle, Clarence "Chip"

Professor of Microbiology
Assistant Dean, Academic Affairs/Basic Medical Sciences
PhD Microbiology, Immunology and Parasitology, Louisiana State University
BS Geology, Mt. Union College

Faulkner, Charles

Assistant Professor of Veterinary Science
PhD (Anthropology), University of Tennessee-Knoxville
MA (Anthropology), University of Tennessee-Knoxville
BA (Anthropology), University of Tennessee-Knoxville

Faulkner, Vina

Associate Professor of Veterinary Medicine
LMU-CVM
PhD (Comparative and Experimental Medicine), University of Tennessee-Knoxville
MS (Biology), University of Wisconsin-Eau Claire
BS (Biology), Mt. Senario College

Fowler, Jason

Assistant Professor of Biochemistry
PhD Biochemistry, Ohio State University
BS Biochemistry, Ohio State University

Furches, Marvin S.

Assistant Professor of Biology
PhD Evolutionary Biology, University of Tennessee-Knoxville
MS Biology, University South Dakota
BS Environmental Health, East Tennessee State University

Gassler, John

Assistant Professor of Anatomy
DPT, Hardin-Simmons University
MS Anatomy, Hardin-Simmons University

Gromley, Adam

Assistant Professor of Molecular/Cellular Biology
PhD Biomedical Sciences, University of Massachusetts Medical School
BA Microbiology & Molecular Cell Science, University of Memphis

Gromley, Zeynep

Assistant Professor of Biochemistry
PhD Biochemistry, Medical College of Wisconsin
MS Biochemistry, University of Dokuz Eylul, Izmir Turkey
BS Biological Sciences, University of Dokuz Eylul, Izmir Turkey

Hall, Julie

Assistant Professor of Biology
PhD Cell and Molecular Genetics, University of North Carolina, Chapel Hill
BS Biotechnology, Elizabethtown College

Henderson, Melissa

Assistant Professor of Biochemistry & Molecular Biology
PhD Biochemistry and Molecular Biology, Eastern Carolina University
BS Biology, Northern Arizona University

Henry, Robert

Professor of Anatomy
PhD, Veterinary Anatomy, Ohio State University
DVM, Ohio State University
MS Veterinary Anatomy, Ohio State University

Hermey, Donna

Professor of Anatomy
PhD Anatomy & Cell Biology, Temple University
BS Biology, Muhlenburg College

Jarstfer, Amiel

Professor of Biology
Dean, School of Mathematics and Sciences
Administrative Dean, Master of Science Degree Program

Program Director, Master of Science, Life Science Research
PhD Plant Pathology, University of Florida
BS Biology, Friends University

Johnson, Robert

Associate Professor of Physiology
Chair, Physiology and Pharmacology
Ph.D. in Physiology, University of Missouri-Columbia
M.S. in Pharmacology, University of Missouri-Columbia
B.S. in Psychology, Southwest Missouri State University

Kunigelis, Stan

Professor of Physiology
Director of LMU Imaging Center
PhD Biology, York University
MS Biology, York University
BS Biology, York University

Langley, Natalie

Associate Professor of Anatomy
Program Director, Master of Science, Anatomical Sciences
PhD Biological Anthropology, University of Tennessee
MA Anthropology, Louisiana State University
BA Anthropology & German, Louisiana State University
Diplomat of the American Board of Forensic Sciences

Leo, Jonathan

Professor of Neuroanatomy
Assistant Vice President Admissions & Students, Health Sciences
Associate Dean of Students, DCOM
Chair, Department of Anatomy
PhD Anatomy, University of Iowa
BA MacAlester College

Osborn, Gerald

Program Director, Master of Science, Biomedical Professions
DO, A.T. Still University, Kirksville College of Osteopathic Medicine
MPhil Medical History, Cambridge University (Master of Philosophy)
BA Wilmington College

Palazollo, Dominic

Professor, Physiology

PhD Physiology, Kansas State University

MS Anatomy & Physiology, Kansas State University

BS Biology, Providence College

Rollins, Adam

Associate Professor of Biology

Chair, Department of Biology

BS (Biology), Fairmont State University

MS (Forestry), West Virginia University

PhD (Biology), University of Arkansas

Throckmorton, Zach

Assistant Professor of Anatomy

PhD Anthropology, University of Wisconsin-Madison

MS Anthropology, University of Wisconsin-Madison

MS Human Biology, University of Indianapolis

BS Anthropology-Zoology, University of Michigan

Wood, Paul

Professor of Pharmacology

PhD Pharmacology, Queens University

MS Pharmacology, Queens University

BS Biology, Trent University

Staff

Name	Title	Tel. Ext.	Email	Office Location
Lee Wilkerson	Director of Residential Life	7088	lee.wilkerson@LMU.net.edu	Dishner Hall
Tammy Tomfohrde	Executive Director of Financial Aid	6465	tammy.tomfohrde@LMU.net.edu	DAR 1 st Floor
Stan Iliff	Anatomy Lab Facilities Manager	6337	stan.iliff@LMU.net.edu	MANS 406
Janette Martin	Director of Admissions, DCOM	7102	janette.martin@LMU.net.edu	DCOM 316
Holly Napier	Master of Science Recruitment & Student Services Coordinator	6027	holly.napier@LMU.net.edu	MANS 324
Jill Neely	Director of Student Accounts	6282	jill.neely@LMU.net.edu	DAR 1 st Floor
Genell Patterson	Admissions Coordinator LMU-CVM	6078	genell.patterson@LMU.net.edu	MANS 312
Jennifer Wampner	Administrative Assistant, Math & Sciences Department	7071	jennifer.wampner@LMU.net.edu	MANS 327E

Contact Information Key: DCOM = DeBusk College of Osteopathic Medicine; MANS = Math & Science Building; DAR = Daughters of the American Revolution Hall

Contact Information by Department

Department	Telephone	Campus Location
LMU Bookstore	423.869. 6306	2nd Floor, Student Center
Financial Aid	423.869.6336	1 st Floor, DAR Hall
LMU Post Office	423.869.6301	Lower Level, Tex Turner Arena
Registrar	423.869.6313	1 st Floor, DAR Hall
LMU Security	423.869.6338	Upper Level, Tex Turner Arena
Residential Life	423.869.6212	Dishner Hall
Cashier's Office	423.869.6315	1 st Floor, DAR Hall
Student Services	423.869.6201	2 nd Floor, DAR Hall

MS 2015 – 2016 ACADEMIC CALENDAR

LINCOLN MEMORIAL UNIVERSITY

Approved by Cabinet, January 14, 2015

Undergraduate Academic Calendar 2015-2016

Official University Holidays (Offices closed/no classes):

2015: September 7; November 26-27; December 25-31;

2016: January 1; March 25; May 30 and July 4.

Fall Semester 2015

Master of Science Residence Halls Open	July 25
Master of Science Orientation	July 27 – 31
First Day of Medical Gross Anatomy	July 31
Final Registration before classes begin	August 14
New Student Survival Weekend	August 15
Matriculation Ceremony (11a.m.)	August 15
Residence halls open (8a.m.)	August 16
Classes begin	August 17
Last day to complete registration/add classes	August 26
Labor Day (no classes, residence halls remain open)	September 7
Last day to drop course without “WD”	September 15
Homecoming (classes held as scheduled)	October 8 - 10
Mid-term	October 12 - 16
Last day to drop course without “F”	October 23
Early registration begins	October 26
Thanksgiving holiday (no classes)	November 26-27
Residence halls open (1 p.m.)	November 29
Classes end	December 4
Last day to sign-up for a research project in Spring 2016	December 4
Last day to apply for a research award from Fall 2015	December 4
Final exams	December 7-11
Last day to request Dual Major or Change of Major	December 7
Commencement (11 a.m.)	December 12
Residence halls close (2 p.m.)	December 12
Last day to appeal to repeat a graduate course in Spring 2016	December 28
Last day to appeal a fall 2015 course grade	December 29

Spring Semester 2016

Final Registration before classes begin	January 8
Residence halls open (8a.m.)	January 10
Last Day to request a Dual Major	January 11
Classes begin	January 11
Research Awards from Fall 2015 announced	January 15
Martin Luther King Day (special activities)	January 18
Last day to complete registration/add classes	January 20
Last day to drop course without “WD”	February 9
Lincoln Day/Founders Day (special activities)	February 12
Mid-term	Feb. 29 – March 4
Last day to drop course without “F”	March 18
Residence halls close (5 p.m.)	March 18
Spring break (no classes)	March 21-25
Good Friday	March 25
Residence halls open (1 p.m.)	March 27

Early registration begins	April 4
Classes end	April 29
Final exams	May 2-6
Last day to sign-up for a research project in Summer 2016	May 6
Last day to apply for a research award for Spring 2016	May 6
Commencement (11 a.m.)	May 7
Residence halls close (2 p.m.)	May 7
Last day to appeal to repeat a graduate course in Fall 2016.....	May 27
Last day to appeal a spring 2016 course grade	May 30
<u>Summer Term 2016</u>	May 9– July 29
Research Awards from Spring 2016 announced.....	May 20
Memorial Day (no classes)	May 30
Independence Day (no classes)	July 4
During the 12-week summer term, classes may meet 3 weeks, 4 weeks, etc. as long as the required number of contact hours is met.	

DCOM 2015 – 2016 ACADEMIC CALENDAR

Fall Semester 2015	
Orientation	July 28-July 31, 2015
OMS I Classes Begin	July 31, 2015
OMS II Classes Begin	August 3, 2015
Labor Day Break	September 7, 2015
White Coat Ceremony	September 26, 2015
AOA Convention (No Days Off)	October 17-21 2015
Thanksgiving Break	November 26-27, 2015
Christmas Break	December 19, 2015 - January 3, 2016
Spring Semester 2016	
Classes Begin	January 4, 2016
Martin Luther King, Jr. Day Break	January 18, 2016
Spring Break	March 21-25, 2016
Good Friday	March 25, 2016
TOMA Convention (No Days Off)	April 23 – 26, 2016
End of Semester	May 20, 2016 (OMS-II) May 27, 2016 (OMS-I)
Last Day to take COMLEX Level 1	June 9, 2016
OMS II Remediation Exams	May 27 and June 16, 2016
Class of 2016 Graduation	May 14, 2016

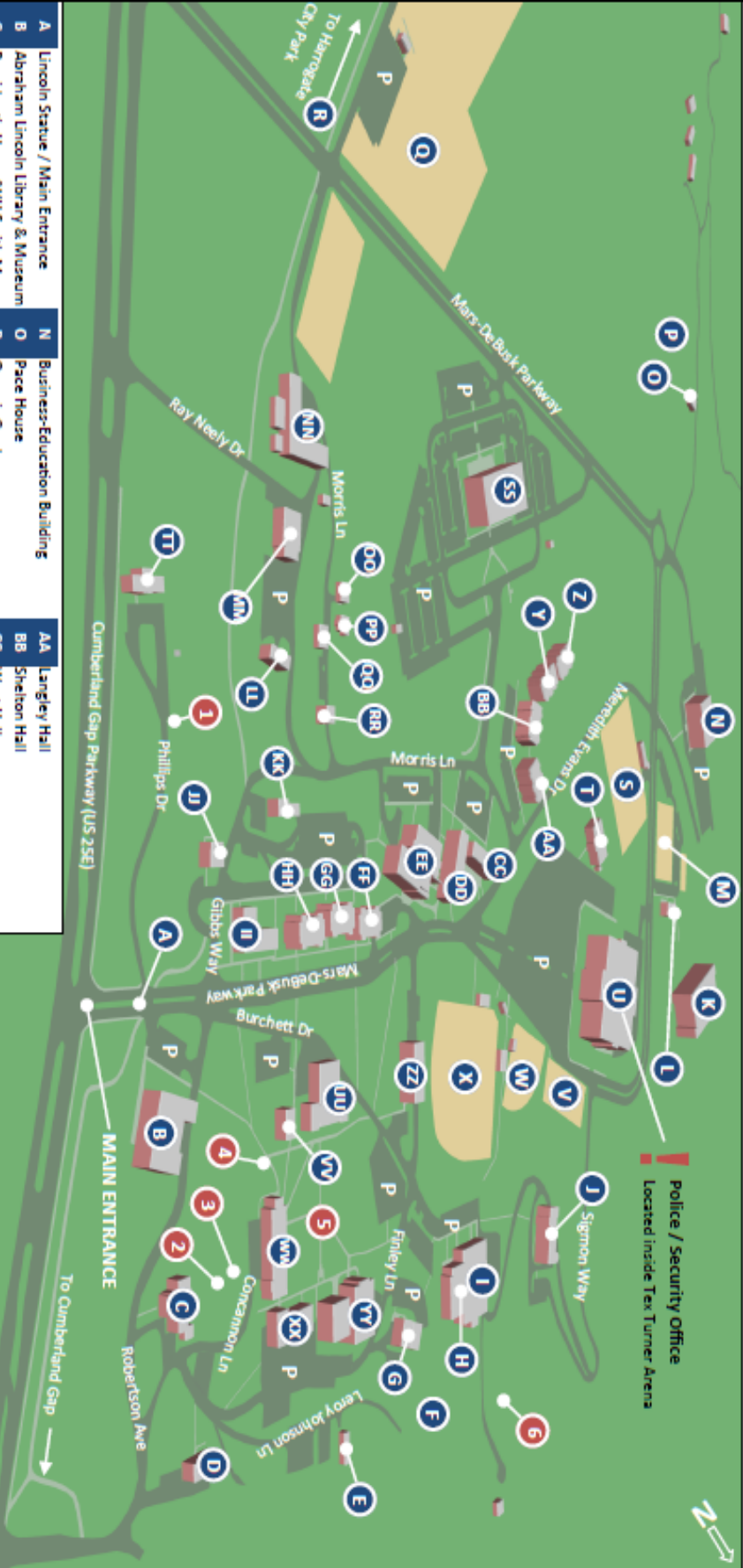
LMU-CVM 2015 – 2016 ACADEMIC CALENDAR

Fall Semester 2015	
Orientation	August 4 – 7, 2015
Classes Begin	August 10, 2015
Labor Day Break	September 7, 2015
White Coat Ceremony	October 3, 2015
Thanksgiving Break	November 26-27, 2015
Classes End	December 11, 2015
Christmas Break	December 12, 2015 - January 3, 2016
Spring Semester 2016	
Classes Begin	January 4, 2016
Martin Luther King, Jr. Day Break	January 18, 2016
Spring Break	March 21-25, 2016
Good Friday	March 25, 2016
Classes End	May 6, 2016
Veterinary Educational Assessment Exam*	May 9, 2016

***The Veterinary Educational Assessment Exam is for 2nd Year Students ONLY.**

Main Campus Map
Harrogate, Tennessee

- Campus Buildings
- Athletic Fields/Complexes
- Parking
- Sidewalks
- Roads



A	Lincoln Statue / Main Entrance	N	Business-Education Building	AA	Langley Hall	NN	Phillips Vet Tech Center	XX	Farr-Chinnock Hall
B	Abraham Lincoln Library & Museum	O	Pace House	BB	Shelton Hall	OO	Robertson House	YY	Harold M. Finley Learning Resources Center (Library)
C	President's Home/WH Smith Manor	P	Organic Garden	CC	West Hall	PP	Alumni House / Sigmon House	ZZ	J. Frank White Academy
D	Krege Hall	Q	Golf Complex	DD	Lies Hall	QQ	Cumberland Mtn Research Center	1	Huff Tower
E	Water Filtration Plant	R	Harrogate City Park	EE	Student Center	RR	Bailey House	2	Spring House
F	Water Storage	S	Soccer Field	FF	Dishner Hall	SS	Debusk College of Osteopathic Med	3	Amphitheatre
G	Sigmon Communications Center	T	Schenck Center	GG	Mitchell Hall	TT	Byram Hall	4	Alpha Alumni Park
H	Mary S. Annan Natatorium	U	Tex Turner Arena	HH	Pope Hall	UU	Duke Hall	5	Campus Quard
I	Mary Mary Gymnasium	V	Annan Tennis Courts	II	LaFrenz-Poole Hall	VV	Elizabeth D. Chinnock Chapel	6	Democrat Hollow / Ropes Course
J	Grant-Lee Hall	W	Dorothy Neely Field (Softball)	JJ	Munson House	WW	Avery Hall		
K	Math and Science Center	X	Lamar Hemmon Field (Baseball)	KK	Bluebird Hall				
L	Postat Tennis Complex	Y	Building 3	LL	Poetry Shop				
M	Tennis Courts	Z	Building 4	MM	Maintenance Building				

Addendum

The following statement is added to the course descriptions (pages 45, 46) for ANAT 701 Medical Gross Anatomy, ANAT 714 Medical Histology, ANAT 715 Neuroanatomy, VANT 710 Veterinary Anatomy I and VANT 720 Veterinary Anatomy II: **“Course available to Master of Science degree-seeking students only.”** to the catalog descriptions of **ANAT 701, 714, 715 and VANT 710 and 720.**

Course Information Revisions – Pages 40, 41

DO SYS 701 Medical Gross Anatomy (MGA) (6.5) should read ANAT 701 Medical Gross Anatomy (MGA) (7)

DO SYS 714 Histology (6.0) should read ANAT 714 Histology (4)

DO SYS 715 Neuroanatomy (3) should read ANAT 715 Neuroanatomy (3)

CVM 710 Veterinary Anatomy I (5.5) should read VANT 710 Veterinary Anatomy I (5)

CVM 720 Veterinary Anatomy II (5.5) should read VANT 720 Veterinary Anatomy II (5)

LSCI 506 Microscopic Imaging Theory & Technique is 3 credit hours.

†Students seeking a career in teaching or academic medicine should substitute ANAT 603 for ANAT 605 614.

Course Information Revision – Page 48

LSCI 506 Microscopic Imaging and Theory Techniques (2 3 credit hours)

Tuition Cost Revision – Pages 19-20

The per credit cost for students in the Anatomical Sciences and Biomedical Professions tracks is \$1,116 per credit hour.