University of South Carolina

Applied Biotechnology Program Manual

Affiliate of the School of Medicine Columbia Biomedical Science Master of Science Degree and the Instrumentation Resource Facility

Drafted	19 June 2025
Revisions	

Instrumentation Resource Facility
School of Medicine Columbia
UNIVERSITY OF SOUTH CAROLINA

Contents

A. Introduction

The University of South Carolina School of Medicine's Biomedical Science MS Program is a collaborative effort among the School of Medicine's basic science departments, including Cell Biology and Anatomy (CBA), Pathology, Microbiology and Immunology (PMI), and Pharmacology, Physiology, and Neuroscience (PPN). This interdisciplinary program leads to a Master of Science in Biomedical Science and provides students with extensive theoretical and practical training in the biomedical sciences. Designed for individuals seeking to broaden or shift their educational and professional trajectories, the program supports personal, pre-professional, or career advancement goals. The curriculum consists of comprehensive coursework in fundamental biomedical disciplines, with an option to pursue either a thesis or non-thesis track. Students choosing the thesis option may conduct hands-on laboratory research or engage in library-based research under the supervision of a Major Professor and with guidance from a Thesis Committee. While the Major Professor is typically a member of the School of Medicine's Basic Science faculty, students may, under special circumstances, complete their thesis under the supervision of a university faculty member outside the School of Medicine, provided all program requirements are met.

The **M.S. in Biomedical Sciences with a concentration in Applied Biotechnology** is a dynamic, hands-on graduate program designed to prepare students for careers at the forefront of biomedical innovation. Spanning 36 credit hours over two years, the curriculum features five immersive, lab-based courses where students gain critical skills in techniques ranging from sample preparation to advanced microscopic imaging. A cornerstone of the program is the internship experience, offering students the opportunity to work alongside leading scientists in active biomedical research laboratories. Here, students apply their knowledge to real-world projects exploring cutting-edge topics such as inflammation, cancer, cardiovascular and neurological diseases, immunology, and drug delivery. To culminate their training, students must complete a research-based thesis demonstrating their mastery of the field and readiness to contribute meaningfully to the future of biomedical science.

The Director of the Applied Biotechnology Program, in support of the Director of the Biomedical Science Graduate Program and the School of Medicine Graduate Office staff, is committed to supporting and guiding each student throughout their academic journey. All students enrolled in the program—whether pursuing a full degree or a single course—are subject to the policies and procedures outlined in the following pages. Should any policies or procedures be updated after a student's admission, the student may choose to adhere either to the new guidelines or to those in effect at the time of their entry into the program. It is important to note that violations of these policies may result in disciplinary action, including possible dismissal from the program.

B. Administration

The Applied Biotechnology Program, along with the Biomedical Science Graduate Program, follows the general academic regulations of the University of South Carolina Graduate School as described in the Graduate Studies Academic Bulletin (https://academicbulletins.sc.edu/graduate/graduate-school/). Specific requirements of the Applied Biotechnology Program are described in this manual.

1. Program Administration

The Applied Biotechnology Program is administered by the Director for the Applied Biotechnology Program, in consultation with the Assistant Director for the Applied Biotechnology Program, the Director for the Biomedical Sciences Graduate Program and Biomedical Sciences Program Coordinator. The Office of Graduate Studies maintains student files and required graduate forms and is located in room 229 of Building 3 on the School of Medicine.

- Director, Applied Biotechnology Program — Dr. Austin Worden (216-3823)
- Assistant Director, Applied Biotechnology Program — Dr. Jay Potts (216-3820)
- Director, Biomedical Science Graduate Program — Dr. David Mott (216-3512)
- Biomedical Science Graduate Coordinator — Ms. Hope Bursac (216-3321)
- Senior Financial Aid Officer — Mr. Jerel Arceneaux (216-3629)

2. Academic Responsibility & Student Advocacy

Please tailor this statement to the specific objectives of your course/college and the goals of your profession. The Office of Student Conduct and Academic Integrity (OSCAI) (https://sc.edu/about/offices_and_divisions/student_conduct_and_academic_integrity/) encourages you to customize this statement to spark intellectual curiosity and promote critical thinking in your course.

The educational program at the School of Medicine has been developed to support and encourage the collegiality and professionalism that is essential to an effective learning environment. Students who believe that they have been punitively assessed or mistreated because of religion, race, ethnicity, gender, sexual orientation, age or other factors have access to the campus Office of Civil Rights & Title IX (https://www.sc.edu/about/offices_and_divisions/civil_rights_title_ix/).

The Office of Student Advocacy provides support to students by helping them resolve university-related problems and concerns through informal guidance and intervention (https://www.sc.edu/about/offices_and_divisions/student_affairs/our_initiatives/academic_success/ombuds_services/). Students are encouraged to seek assistance from this office in a variety of situations, such as when they need help certifying an excused absence, are unsure where to go or whom to contact about a particular issue, feel they have been treated unfairly by a faculty or staff member, or need help navigating university policies and procedures.

C. Program Logistics

1. Admissions

Applicants can apply to the Biomedical Sciences MS program using the UofSC ApplyWeb system (https://www.applyweb.com/UofSCgrad/index.ftl). An applicant must have a baccalaureate degree or its equivalent from an accredited college or university. Undergraduate courses should include at least two semesters each of biology, physics, general chemistry, and organic chemistry as well as some math (preferably through calculus). While research experience is not required, it is strongly recommended due to the nature of courses taken in the Applied Biotechnology Program.

Admission to the Biomedical Sciences MS program is determined by the Dean of The Graduate School after recommendation by the Applied Biotechnology Program and Biomedical Sciences Graduate Program leadership. Criteria examined include an appraisal of the applicant's transcript, letters of recommendation, research/relevant experience, and the student's statement of purpose for graduate study. GRE, MCAT or DAT scores are not required for admission but can be submitted if an application chooses. A BS degree in a subject related to biomedical science, although not required, makes an application more competitive.

A Grade Point Average (GPA) of 3.00 or better is required in both the undergraduate major and overall. A minimum TOEFL score of 100 (out of 120) is also required by the UofSC Graduate School for students whose native language is not English; however, a score of 110 or above is preferred.

Once admitted to the Biomedical Sciences MS program, applicants interested in the Applied Biotechnology concentration will be contacted separately by Dr. Worden for a brief interview to determine the applicant's fit in the program.

2. Advisor

For students pursuing the Applied Biotechnology concentration, Dr. Austin Worden will serve as primary advisor. Upon selection of a Major Professor (MP), the student will still be advised by Dr. Worden but will discuss potential elective courses with their MP that would aid in the advancement in their research. The BMSC Program Coordinator will ensure that all requirements are met for degree progression.

3. Academic Regulations

a. Grades & Academic Progress

Graduate courses may be passed for degree credit with a minimum grade of C, but the student's average on all courses attempted for graduate credit must be at least B (3.0 on a 4 point system). Core courses completed with a grade below a C must be repeated until a grade of C or better is obtained. Graduate students whose cumulative grade point average drops below B (3.00) will be placed on academic probation and allowed one calendar year in which to raise the grade point average to at least 3.00. Students who do not reach a cumulative 3.00 grade point average during the probationary period will not be permitted to enroll for further graduate course work in that degree program. Appeals for reinstatement

to degree candidacy may be made first to the Biomedical Science Graduate Program. These will be reviewed by the Biomedical Sciences Graduate Committee and, if approved, forwarded to the Dean of the Graduate School.

b. Graduate Assistantships

Biomedical Science MS students are not typically provided with stipend support. Moreover, it should be noted that tuition is charged by the Graduate School and is the responsibility of the student. Since foreign students must have evidence of support throughout their time in the United States, such students cannot be admitted to the Biomedical Science MS program unless they are able to demonstrate access to enough funds to maintain themselves throughout their studies. Normally, foreign students are supported by scholarships from their home country or personal funds.

Once a research mentor is chosen, they may elect to provide stipend support to Biomedical Science MS students doing research in their laboratories, in which case the student may be considered to be a Graduate Assistant. In addition to receiving a stipend, non-South Carolina residents who are Graduate Assistants are assessed the in-state rate for tuition purposes. To be eligible for employment as a Graduate Assistant, a student must be in good standing in the Biomedical Sciences MS program and be registered for at least six credit hours during a major semester. The minimum stipend that must be provided to qualify the student for a Graduate Assistantship is $1,200 for fall or spring semester for no more than ten hours per week of service or $600 per summer session for no more than ten hours per week of service. Appointments for more hours per week should result in proportionately higher stipend amounts.

Biomedical Science MS students are not normally expected to work during examination periods and school holidays. It is the responsibility of the major professor to discuss the period of appointment, work schedule, specific duties, manner, method, and schedule of evaluation with the student. Regular reviews should give feedback to the student about areas of excellent performance and substandard performance, which are detailed enough to make clear what results are desired.

c. Honesty & Integrity

As a student at the University of South Carolina, you are expected to hold yourself to the highest standards of honesty and integrity. The Applied Biotechnology Program is committed to fostering a culture of academic and professional integrity. As future scientists, researchers, and industry leaders, students are expected to uphold the highest standards of honesty, accountability, and ethical conduct in all aspects of their academic and professional development.

Academic integrity is the foundation of meaningful scholarship and scientific advancement. All students are expected to complete assignments, assessments, and research activities with integrity and without unauthorized assistance. This includes proper citation of sources, accurate representation of data, and strict adherence to ethical guidelines in laboratory and fieldwork.

Any form of academic dishonesty, including plagiarism, fabrication of data, unauthorized use of artificial intelligence tools, or misrepresentation of one's work, violates the values of the program and the University of South Carolina. Such actions will result in disciplinary consequences in accordance with university policies, which may include academic penalties, reporting to the Office of Student Conduct and Academic Integrity, or dismissal from the program.

By enrolling in the Applied Biotechnology Program, students affirm their commitment to personal and academic integrity, consistent with the principles outlined in the Carolinian Creed and the University's academic responsibility policies. We expect all members of our academic community to lead by example and contribute to an environment of trust, respect, and scientific excellence.

To better understand the university's policies and expectations, please review the following resources:

- Carolinian Creed: http://www.sa.sc.edu/creed
- Academic Responsibility Policy: http://www.sc.edu/policies/staf625.pdf
- Office of Student Conduct and Academic Integrity: https://www.sa.sc.edu/academicintegrity/
- Information Security Policy and Standards: https://sc.edu/about/offices_and_divisions/division_of_information_technology/security/policy/universitypolicy/

4. Applied Biotechnology Curriculum

a. Required & Elective Courses

The MS degree in Biomedical Sciences requires the completion of a series of Core Courses in basic biomedical topics as well as elective courses in focused areas. The Applied Biotechnology Program requires at least 36 graduate credit hours. A minimum of 65 percent of the hours on the program of study must be from courses within the Biomedical Sciences program (designators BMSC, MCBA, PHPH, MBIM, PATH). Students completing a MS thesis must have 6 hours of combined research (BMSC 780, MCBA 780, MBIM 780 or PHPH 780) and thesis preparation (799 courses). Of the 32 credit hours, at least 50 percent must be in courses numbered 700 or above, exclusive of thesis credit. Up to 12 hours of courses numbered from 500 to 699 may be taken for graduate credit. Students are permitted to take courses in USC schools and colleges other than the School of Medicine; this option provides great flexibility to individually tailor programs and draw on the wider resources of a comprehensive university. Not more than 6 hours of independent study, special topics, or directed research other than dissertation research are permitted, unless justified by the program of study and approved by the Dean of the Graduate School.

The curriculum consists of **required Core Courses** in the biomedical sciences and additional elective courses that depend upon the interest and career goals of the student.

The core courses required for all BMSC MS students include:

- Biomedical Biochemistry (BMSC 754) or Biological Chemistry (BIOL 717)
- Introduction to Biomedical Research (BMSC 700)
- Responsible Conduct of Biomedical Research (BMSC 706)
- Seminar in Biomedical Sciences (BMSC 801)
- Medical Cell Biology I (BMSC 702) or Advanced Cell Biology (BIOL 714)

Additional core courses required for Applied Biotechnology students include:

- Biological Microscopic Imaging I (MCBA 740)
- Biological Microscopic Imaging II (MCBA 742)

- Molecular Methods of Biomedical Research I (MCBA 741)
- Molecular Methods of Biomedical Research II (MCBA 743)
- Special Topics in Microscopic Anatomy (MCBA 720)
- Introduction to Biostatistics (BIOS 700)

Additional electives will be required to meet the needed hours of didactic courses for the Biomedical Science MS degree. These should be selected in advisement with the student's major professor and Thesis Committee (discussed below) or by advisement of the Program/Concentration director. It is imperative that the student take into consideration specific courses that may be required by departments, such as in the Department of Pathology, Physiology, and Neuroscience (PPN).

A full outline of the Applied Biotechnology degree requirements can be found in the Appendix.

b. Required Laboratory-based Research

An important component of the program is an internship in a biomedical research laboratory where students will apply what they learn to a research project focusing on areas such as inflammation, cancer, cardiovascular and neurological diseases, immunology, and drug delivery. Students in the Applied Biotechnology program will be required to successfully complete and defend a research-based thesis.

In very rare circumstances, a student in the Applied Biotechnology program may be granted the opportunity to complete a library-based thesis under Dr. Worden or take and pass the BMSC non-thesis comprehensive exam.

c. Selection of Major Professor

Choosing a Major Professor is a critical step in a student's successful progression through the Applied Biotechnology MS Program. The Major Professor plays a central role in guiding the student's academic and research development, including the selection of elective coursework, identification of a thesis topic, and execution of the associated research. This selection should be made thoughtfully and must reflect a mutual agreement between the student and faculty member. Open communication and alignment of research interests are essential to forming a productive mentoring relationship.

Given the accelerated timeline of the MS program, Applied Biotechnology students are not required to complete formal laboratory rotations. Instead, during the first semester, Dr. Worden will provide new students with a list of faculty members who are currently accepting master's students, along with brief descriptions of potential research projects available in each lab.

In lieu of formal rotations, students are expected to schedule meetings with prospective faculty mentors to explore research fit and discuss expectations. Some faculty may request that students complete a brief trial period (e.g., a one-month rotation) before formally joining their lab. Students who wish to explore multiple options may elect to complete two one-month rotations and must inform the Applied Biotechnology Director of this decision.

The selection of a Major Professor by the student is by mutual agreement and is formalized by submission to the Office of Graduate Studies of a completed "Selection of Major Professor" form (see Appendix) as soon as the mentor is chosen.

d. Program of Study

Every student must submit a Master's Program of Study Form (MPOS) to the Graduate School that specifies all courses taken as part of the degree. The Program of Study includes the Core Courses and electives and is determined with the student's Major Professor and the Applied Biotechnology Director. The MPOS should be submitted by the end of the summer semester or early in the 2nd fall semester. A copy of the form should be submitted to the Biomedical Sciences Graduate Office. The MPOS Form can be located at the UofSC Graduate School Forms Library (http://gradschool.sc.edu/forms/).

e. Required Professional Presentation

As part of their professional development and scientific training, students in the Applied Biotechnology MS Program are required to present their research at a professional conference or research symposium prior to graduation. This experience provides an essential opportunity to communicate scientific findings, receive constructive feedback, and engage with the broader research community.

Each student must be the first author on at least one poster presentation. However, students are strongly encouraged to go beyond this minimum requirement by pursuing additional presentation opportunities, including platform (oral) presentations, if appropriate for their project and venue. Presenting at multiple events is also encouraged, as it fosters professional networking, enhances public speaking skills, and strengthens future applications for jobs or doctoral programs.

A variety of local and regional venues are available to fulfill this requirement, including:

- USC SOMC- W. Morgan Newton Graduate Student Symposium
- Discover USC
- USC Research Core Fair
- SC INBRE Annual Symposium
- IRF Research Day
- Southeastern Microscopy Society (SEMS)
- VA research day

Students are encouraged to discuss presentation timelines and appropriate venues with their Major Professor early in the research process to ensure adequate preparation and alignment with project milestones.

5. Thesis

a. Committee

The Thesis Committee is designed to offer guidance to the student as they progress through the MS program and to provide critical evaluation of the student's thesis research. The Applied Biotechnology MS Thesis Committee must consist of Dr. Austin Worden, Dr. Jay Potts, and the student's Major Professor. In a case where Dr. Worden or Dr. Potts serves as the student's Major Professor, a third committee member will be selected by the Major Professor and student based on relevance to the research project.

The MS Thesis Committee shall be responsible for approval of the student's Program of Study and the approval of a thesis research project and thesis. The Thesis Committee should discourage research by students on projects with no assurances of the free exchange of ideas and scientific information. In addition, the Thesis Committee is responsible for monitoring the student's research progress through regularly scheduled meetings.

It is anticipated that the composition of the Thesis Committee will change only if there is a change in direction of research by the student, in which case an additional member with expertise in that area may be requested to join the committee, and a member who was appointed because of an area of expertise which is no longer relevant may volunteer to resign. If a student changes his major advisor, a new Thesis Committee will be appointed.

b. Proposal

By the end of the second Fall semester, the student, in consultation with their Major Professor, should provide the rest of the thesis committee with a written Thesis Proposal. The proposal should be a short abstract for their thesis that will get the student into the mindset of writing the much longer thesis. This includes a 2-sentence introduction, 2-3 sentences for methods, 2-3 sentences for results, and 2 sentences for conclusion. The written thesis proposal should be submitted to the student's Thesis Committee. A meeting should then be convened to discuss the thesis proposal. The thesis proposal should be submitted to the committee at least one week prior to the scheduled meeting. After approval by the committee, the student should submit the thesis proposal form to the Biomedical Sciences Graduate Office (see Appendix).

c. Writing Guidelines

The culmination of the student's research is the MS Thesis. To allow some flexibility, the specific structure of the thesis is left up to the discretion of the student, Major Professor and Thesis Committee. The goal of the Major Professor and student should be to generate a document that can be published as a scientific manuscript. The thesis will ultimately be submitted electronically to the UofSC Graduate School. Careful attention should be paid to specific formatting requirements of the Graduate School. Failure to adhere to these requirements can result in a delay in graduation. Current requirements can be found at the UofSC Graduate School website (https://www.sc.edu/study/colleges_schools/graduate_school/academics/thesis_and_dissertation/index.php).

d. Defense

The student will be required to present to the Thesis Committee an oral defense of the thesis. The structure of this defense is flexible and should be dictated by the student's Thesis Committee. The student may hold a defense that is open to School of Medicine faculty and students, or the defense may be restricted to the student's Thesis Committee. Following successful defense of the thesis, as determined by the Thesis Committee, the student and Thesis Committee members should complete the Thesis Approval Form (G-TSF) found in the UofSC Graduate School Form Library (http://gradschool.sc.edu/forms/). A copy of the completed form should be delivered to the School of Medicine Graduate Office and the original delivered to the UOFSC Graduate School.

6. Special Cases

a. Library Thesis

In special cases, students may choose to write a thesis using library research on a topic of research selected jointly by the student and the Major Professor. For those in the Applied Biotechnology program, the Major Professor will be the Program Director. The student and the professor will hold regular meetings to assess the progress of the research. It is expected that the thesis will consist of a major review of the literature on a topic of interest to both the student and the faculty member. It is expected that the thesis project will be pursued concurrently with courses with final submission and defense following the same timeline as a research-based thesis.

b. Comprehensive Exam

The University of South Carolina Graduate School requires that all MS students successfully complete a Comprehensive Exam. Successful completion of the thesis defense meets the requirements of a comprehensive exam in the Biomedical Science MS program. Upon completion of the defense, students should complete the Master's Exam Verification Form from the UofSC Graduate School Forms Library (https://sc.edu/study/colleges_schools/graduate_school/graduate-studies/forms_library/).

In special cases, Applied Biotechnology students could choose to take the comprehensive exam, which is administered after completion of the Core Coursework. The exam will be assembled and graded by the Biomedical Sciences Graduate Director. The exam content is reflective of the core curriculum and electives the student completed. To successfully pass the comprehensive exam a student must score at or above 70%. The student has two attempts to pass the comprehensive exam. If the student fails to score a 70% on either attempt, they will not be able to complete their degree and will be removed from the Applied Biotechnology and BMSC programs.

D. Special Policies

All graduate students are subject to the academic policies, regulations, and academic standards of both The Graduate School and the department, school and/or college in which they are enrolled. USC policies can be found in the USC graduate bulletin (https://academicbulletins.sc.edu/graduate/policies-regulations/graduate-academic-regulations). Below are special policies that are only applicable to students in the Applied Biotechnology program.

1. Attendance & Absence Policy

Success in the Applied Biotechnology MS Program is directly tied to student engagement, effort, and participation. In this program, students will get out of the experience what they put into it. Due to the highly technical and hands-on nature of the curriculum, consistent attendance and active participation are essential to both skill development and academic success.

Attendance is required for all scheduled classes, including both lecture and laboratory components. This is especially critical for the five IRF-based courses, where content is delivered through a combination of instruction, real-time instrument operation, and experiential laboratory work. Missing class time in these courses not only disrupts learning but may also delay mastery of essential competencies and techniques.

Students are expected to arrive on time, stay for the duration of the session, and fully engage in all instructional activities. If an absence is unavoidable due to illness, emergency, or other serious circumstances, students must notify the course instructor as soon as possible and may be required to provide documentation. Make-up work is not guaranteed and will be granted at the discretion of the instructor on a case-by-case basis.

More than 4 combined absences from lectures and/or labs will result in the lowering of an overall course grade by one letter grade due to a failure to meet course requirements. For example, if a student has a B in a course, but has more than 4 absences, their final grade will be lowered to a C. In severe cases, continued absences will result in a dismissal from the course and the program.

By enrolling in the Applied Biotechnology Program, students agree to uphold this attendance policy as a professional commitment to their training, their peers, and the integrity of the program.

2. Make-Up Work Policy

The Applied Biotechnology MS Program is designed to provide cumulative, hands-on learning experiences that build from one class session to the next. As such, timely completion of coursework, assessments, and laboratory exercises is essential for student success and for maintaining the integrity of the instructional sequence.

In the event of an unavoidable or excused absence, such as illness, family emergency, or other serious circumstances, students may be granted the opportunity to complete make-up work. Approval of make-up work is at the discretion of the course director and is considered on a case-by-case basis. Students must notify the course director as soon as possible, ideally in advance of the missed class or assessment, and may be required to provide appropriate documentation.

To ensure continuity in learning and limit disruption to instructional progress, the following deadlines apply for any approved make-up work:

- Laboratory Work: Must be completed within two weeks of the original due date.
- Tests, Quizzes, and Other Assessments: Must be completed within one week of the original scheduled date.

Failure to complete approved make-up work within the designated timeframe may result in a zero for that assignment, unless otherwise arranged with and approved by the course director.

It is the student's responsibility to coordinate with the instructor regarding scheduling, expectations, and any materials needed to complete the missed work. Repeated absences or failure to complete make-up assignments in a timely manner may result in academic penalties and may impact the student's standing in the program.

3. Program Standing Policy

Students enrolled in the Applied Biotechnology concentration of the MS in Biomedical Sciences (BMSC) program must maintain satisfactory academic progress and meet all course requirements specific to the concentration.

- ***IRF Course Requirement***- Due to the specialized and technical nature of the Applied Biotechnology curriculum, students must pass all IRF-based courses to remain in the concentration. Failure to pass any IRF course will result in removal from the Applied Biotechnology program. However, the student may continue in the general MS in Biomedical Sciences program without a concentration, subject to approval by the Graduate Program Director.
- ***Grade Reporting Requirement-*** Applied Biotechnology students are required to submit their final course grades to the Applied Biotechnology Director at the end of each semester. This reporting helps ensure timely academic review and early identification of any issues that may impact progression in the program.

Failure to meet these expectations may result in academic probation, loss of concentration status, or dismissal from the program in accordance with university policies.

4. Time-to-Degree Policy

The Applied Biotechnology concentration within the MS in Biomedical Sciences program is designed to be completed within a structured two-year cycle. Students are expected to complete all coursework, research, and graduation requirements within this timeframe.

Students who do not complete the concentration requirements within the two-year period may be removed from the Applied Biotechnology program, unless an extension is specifically approved in writing by the Program Director. Approval will be granted only under exceptional circumstances and with a demonstrated plan for timely completion.

Students removed from the concentration may still be eligible to complete the MS in Biomedical Sciences degree without a concentration, pending review and approval by the Graduate Program Director.

E. Appendices

- **Item 1: Applied Biotechnology Concentration Outline**
- **Item 2: Selection of Major Professor**
- **Item 3: Thesis Proposal**

University of South Carolina School of Medicine Columbia
Biomedical Sciences Master's Program
Applied Biotechnology Concentration Checklist

Degree Requirements

- ✓ 36+ credit hours
- ✓ Research-based thesis
- ✓ One Professional Presentation
- ✓ Demonstrate understanding of molecular and microscopic techniques
- ✓ USC Graduate School Website:
  - https://www.sc.edu/study/colleges_schools/graduate_school/graduate-studies/progress_to_degree/index.php

Course Requirements

Fall Semester (Year 1)

- ❖ *MCBA 740- 3 hours- Biological Microscopic Imaging I
- ❖ *MCBA 741- 3 hours- Molecular Imaging Methods of Biomedical Research I
- ❖ *BMSC 700- 1 hour- Intro Biomedical Research; pass/fail
- ❖ *BMSC 706- 2 hours- Responsible Conduct of Biomedical Research; pass/fail
- ❖ *BMSC 702- 4 hours- Medical Cell Biology I
- ✦ Housekeeping: You should begin talking to labs so that you can choose your major professor by the middle of the semester.
  - Students may choose to complete two 1-month long rotations through labs, but it is not required.
  - Once you identify your major professor/thesis advisor, submit a Selection of Major Professor form to SOMC Graduate Office (Hope Bursac).

Spring Semester (Year 1)

- ❖ *MCBA 742- 3 hours- Biological Microscopic Imaging II
- ❖ *MCBA 743- 3 hours- Molecular Imaging Methods of Biomedical Research II
- ❖ *BMSC 801- 2 hours- Seminar; pass/fail
- ❖ Elective (student's choice)- *consult with Dr. Austin Worden or Dr. Jay Potts*
- ✦ Housekeeping: You should be getting your thesis committee together. Committee members should be:
  - Dr. Austin Worden
  - Dr. Jay Potts
  - Major Professor/PI of the lab you are working in.

Summer Semester (Year 1)

- ❖ *BIOS 700- 3 hours- Intro to Biostatistics (offered online)
  - *This is a perfect time to take this course*
- ❖ Conduct research in lab or internship- *consult with Dr. Worden or Dr. Potts*
- ✦ Housekeeping: Submit your master's Program of Study (MPOS) to SOMC Graduate Office (Hope Bursac) AND USC Graduate School.

Fall Semester (Year 2)

- *MCBA 720- 3 hours- Special Topics Microscopic Anatomy
- *BMSC 754 – 4 hour – Biomedical Biochemistry OR BIOL 717- 4 hours- Biological Chemistry (on the main campus)
- *Research-780-(take up to 5 hours)
  - *with lab -consult with Dr. Worden*
- *BIOS 700- 3 hours- Introduction to Biostatistics (offered online), *if not previously taken*.
  - OR graduate elective course level 500 or above.
- Housekeeping:
  - Submit a copy of your approved thesis proposal to SOMC Graduate Office (Hope Bursac)
  - Give a poster presentation at a local or regional conference

Spring Semester (Year 2)

- *BMSC 780- up to 5 hours- Research in Anatomy
- *BMSC 799- at least 1 hour- Thesis Prep
- Housekeeping:
  - Last chance to give a poster presentation at a local or regional conference
  - Check USC Graduate School website for thesis submission and defense deadlines for spring graduation (https://www.sc.edu/study/colleges_schools/graduate_school/graduate-studies/dates-deadlines/index.php).
  - Write your thesis
  - Submit your thesis paper for format check prior to deadline
  - Successfully defend your thesis
  - Submit final revised thesis prior to deadline
  - Submit G-TSF-Thesis Signature & Approval form, and if needed, your embargo memo.

Example of Elective courses (consult with Dr. Worden or Dr. Potts)

- PATH 711- Experimental Pathology (SOMC)
- MBIM 710- Basic and Clinical Immunobiology (SOMC)
- BMEN 572-Tissue Engineering
- BMEN 723-Anatomy & Physiology for Biomedical Engineers
- BIOL 530-J50-Histology {offered online}
- BIOL 610-Hallmarks of Cancer

*Required classes

SELECTION OF MAJOR PROFESSOR FORM

Selection of a Major Professor is an important step in the progression towards the MS degree. This is an agreement that should be entered into only after considerable discussion and consideration.

This form should be filled out by the student, signed by all involved parties and delivered electronically or in print form to the School of Medicine Graduate Office, Building 3, room 229.

The undersigned individuals agree that _____ will carry
Student's Name

out their MS thesis under the mentorship of _____.
Mentor's Name

Signatures:

Student:_____

Major Professor:_____

Department Chair:_____

Graduate Program Director: _____

UNIVERSITY OF SOUTH CAROLINA
BIOMEDICAL SCIENCE GRADUATE PROGRAMS

THESIS PROPOSAL ACTION FORM

Each MS candidate should prepare a 1-page written thesis proposal that summarizes the scope of the research to be conducted and the projected content of the thesis, in abstract form. Following a meeting with the student's Thesis Committee, this form should be completed by the Director of the Thesis Committee to document the results of the proposal meeting. The completed form and a copy of the thesis proposal should be submitted to the School of Medicine Graduate Office.

Title (or focus) of Thesis:

_____

Date of Meeting: _____

Action Taken (Check One):

Proposal approved _____

Proposal approved conditionally* _____

Proposal in need of re-review with another meeting _____

* Summary of Conditions:

_____ _____

Thesis Director Name *Thesis Director Signature*

_____ _____

Student Name *Student Signature*