



**Student and Mentor Information Pack**  
**Master of Science in Integrative Biology Program**

**Version 07.01.2022**

# Contents

|   |    |
|---|----|
| PART 1: THE GRADUATE STUDENT.....   | 5  |
| MSIB Graduate Student Responsibilities .....  | 5  |
| Faculty and Staff Involved in the Education of Graduate Students.....                                   | 8  |
| The Supervising Professor.....  | 8  |
| Thesis Committee Members .....  | 8  |
| Responsibility of The Graduate Coordinator of the Master of Science in Integrative Biology Program..... | 9  |
| Procedures for Handling Grievances and Complaints.....  | 9  |
| Master of Science in Integrative Biology Program Committee.....   | 10 |
| Policies regarding the thesis process.....  | 11 |
| Coursework:.....  | 12 |
| Policies regarding tuition waivers.....   | 16 |
| Policies regarding health insurance .....   | 16 |
| Continuous Enrollment Policy .....  | 16 |
| Policies regarding computers.....   | 16 |
| Timeline.....   | 17 |
| PART 2: THE TEACHING ASSISTANT.....   | 18 |
| Workloads and responsibilities for Teaching Assistants .....  | 18 |
| Assignment of Teaching Assistants.....  | 19 |
| Faculty and Staff Involved in the Supervision of Teaching Assistants.....                               | 19 |
| Moving from Teaching to Research Assistantship.....   | 20 |
| PART 3: THESIS PROPOSAL FORMS.....  | 21 |
| Research Proposal Assessment Instrument .....   | 23 |
| PART 4: THESIS SUBMISSION AND APPROVAL FORMS.....   | 25 |
| Research Portfolio Assessment Instrument.....   | 27 |
| Program-level Student Learning Outcome: .....   | 27 |

|  |    |
|--|----|
| MSIB Student Self-Assessment Form .....    | 28 |
| Thesis Defense Assessment Instrument ..... | 30 |
| Individual Development Plan.....           | 32 |
| Appendix A .....                           | 36 |



**KENNESAW STATE**  
UNIVERSITY  
COLLEGE OF SCIENCE AND MATHEMATICS

**Student Handbook for the Master of Science in  
Integrative Biology Program**

## PART 1: THE GRADUATE STUDENT

### MSIB Graduate Student Responsibilities

As a graduate student, you must adhere to the policies and procedures that govern their education at Kennesaw State University. That responsibility requires that you know where to find the rules and regulations of the Graduate School and any additional requirements of their specific programs. Many of these policies and requirements are found the Kennesaw State University Graduate Catalog (visit <https://catalog.kennesaw.edu/index.php> and choose the current catalog from the drop down menu at the top right of the page) and include information on:

- Expectations for satisfactory graduate level student performance
- Definition of legal residence
- Out of state tuition waivers
- Assistance in identifying and seeking financial aid
- Satisfactory Academic Progress Standards for financial aid
- Registration procedure
- Auditing
- Candidacy requirements
- Residency requirements
- Transfer credit
- Course load for full-time status
- Course repetitions
- Transient student status
- Grading system and withdrawals
- Academic Probation
- Readmission policy
- Grade appeal procedures
- Graduation requirements pertaining to GPA and credit hours

You are expected to earn grades of at least “B” in most course work for your degree. For graduation, you must have earned a cumulative grade-point average of at least 3.0 in all graduate course work at Kennesaw State University and a grade of “C” or better in each course presented to meet degree requirements (grades for Research for Master’s Thesis do not count as course work). A grade below ‘C’ in any course is grounds for a student’s dismissal from the program. Whenever your cumulative graduate grade-point average drops below 3.0, you will be placed on probation and be advised of the significance and potential consequences of this action. While on probation, you will not be permitted to apply for admission to candidacy, take comprehensive exams, or obtain a graduate degree. To be eligible for graduate teaching assistantships and graduate research assistantships, your cumulative graduate grade-point average must be 3.0 or higher (and for an entering graduate student, the undergraduate grade-point average must be 3.0 or higher).

You are expected to maintain normal progress toward the degree. "Normal progress" means moving through the series of steps necessary to obtain a master’s degree at a reasonable pace (typically two years), and at the level of performance the department requires of all

its graduate students. These steps are described in detail in the “**Policies regarding the thesis process**” section. Because this thesis-based program is centered on completing publishable research projects, you are expected to commit the majority of your time to the program. You are strongly discouraged from seeking external employment while pursuing your degree and are encouraged to investigate other options for financial aid as needed.

**A central goal of the MSIB program** is for students to progress to the point of becoming self-reliant researchers capable of using their knowledge of the scientific process to advance professionally. To this end, expectations beyond maintaining grades and producing a quality research thesis include:

- **Self-Directedness:** You are expected to take primary responsibility and ownership for your learning and development. You have a significant personal responsibility for:
  - Determining the direction of your graduate studies.
  - Making frequent critical assessments of you own progress and achievement.
  - Understanding requirements to complete your degree objectives and for developing a plan to satisfy these requirements within an acceptable timeline.
  - Initiating discussions with major professors concerning thesis research, coursework, and committee appointments and meetings. You should inform your major professor about any financial or personal problems that threaten your progress toward the completion of degree requirements.
  - Manage time effectively for maximum professional development as well as personal health and well-being, balancing competing demands such as being a student, a graduate assistant, a parent, a spouse, a caregiver, etc.
  
- **Developing Professional Identity:** In addition to developing skills and competence within a field, a professional displays responsibility, develops cultural and social sensitivity and etiquettes, and adheres to ethical standards. You should:
  - Participate in professional activities, such as departmental and college seminars and scientific conferences pertaining to your discipline.
  - Immerse yourself in the scientific literature appropriate to your studies. A good practice is to read at least one article each day.
  - Participate at an appropriate level in university, departmental, or program governance.
  - Develop a collegial and professional network with faculty, fellow students, and other professional within your field.
  - Conduct oneself in a mature and civil manner.
  - Work with diverse faculty and peers regardless of their race, gender, religion, sexual orientation, or national origin.
  
- **Upholding a High Standard of Research and Academic Integrity:** Relative to undergraduates, graduate students are granted greater access, given more responsibility, and allowed greater independence in directing their studies. Because of this, you are expected to exercise the highest levels of academic

integrity. Failure to do so can lead to suspension or dismissal. Graduate students must:

- Exercise the highest integrity while completing their coursework. Unethical actions include but are not limited to cheating on exams or assignments, assisting another student in cheating, failing to acknowledge through citations intellectual materials of others, collaborating on an assignment or examination without specific permission from the faculty member to do so, and selling of notes, syllabi, or papers.
- Exercise the highest integrity in collecting, analyzing, and presenting research data.
- Respect the property of other researchers and of the University.
- Maintain the confidentiality of the supervising professor's and fellow students' professional activities and research prior to presentation or publication, in accordance with existing practices and policies of the discipline.

The responsibilities and duties associated with being a graduate student can be daunting at times. You should feel free to keep an open dialogue with your professors and supervisors about concerns and problems that arise. The Program Coordinator and Department Chair are also available if you are unable to find adequate solutions. If you find yourself having personal difficulties, KSU's Counseling & Psychological Services (CPS) is available for help. Common problems seen by CPS counselors include: academic concerns resulting from poor time management of study skills; test anxiety; difficulty adjusting to college life; roommate difficulties; confusion about career or other identity issues; feelings of isolation and loneliness; depression; anxiety; difficulties relating to other; substance abuse; body image or eating disorders; and family problems. Appointments can be made by calling 470.578.6600 or by dropping by their office located on the 2nd Floor of Kennesaw Hall, Room 2401. Their website is:

<https://counseling.kennesaw.edu/>.

## Faculty and Staff Involved in the Education of Graduate Students

### The Supervising Professor

The Supervising (or “major”) Professor is the primary faculty member responsible for providing guidance on developing a research question and thesis proposal, facilitating and overseeing their student’s research, and reviewing and approving their final research products (the thesis, defense, and seminar). The Supervising Professor is “Chair” of the student’s thesis committee. The Supervising Professor must be accessible to their students and serves as the student’s advisor. You should meet regularly with your Supervising Professor to

- Discuss research ideas
- Discuss membership of the thesis committee.
- Discuss specific research responsibilities, including timelines for completion of research and the thesis.
- Report research progress and discuss any problems that are impeding or might potentially impede progress.
- Discuss professional development.
- Discuss financial support.

The Supervising Professor is expected to:

- Be able and willing to assume principal responsibility for advising students toward degree completion.
- Meet with the student regularly to assess the student’s progress and to provide guidance concerning the student’s research project and professional development.
- Provide individual research space for each student within the faculty member’s assigned research space.
- Procure funding to support the thesis research through internal and/or external sources (This should occur prior to defense of the thesis proposal, and the source of funds should be identified in the thesis proposal budget.)
- Interact with students in a professional, civil, and collegial manner in accordance with University policies and relevant laws.
- Discuss authorship policy with students in advance of entering into collaborative projects, and acknowledge student contributions to research presented at conferences, in professional publications, or in applications for copyrights and patents. The student should receive “first authorship” for publications primarily derived from the creative research and writing of the student.
- Treat students with respect, as junior colleagues and potential future peers upon gaining admission to their program of study.

### Thesis Committee Members

Each of the thesis committee members will carefully review the student’s research proposal and the thesis, and submit comments, corrections, format changes, and other suggestions in writing to the graduate student. Editorial remarks for the thesis shall be submitted at



least two weeks prior to the student's scheduled presentation and defense. Committee members are expected to attend the student thesis proposal, to attend the student thesis seminar and to participate in the student's thesis defense. All appointed committee members are voting members of the student's thesis committee with regards to approving course of study, the thesis proposal, and the final thesis. Thesis Committee members are responsible for selecting comprehensive questions for the purpose of program assessment.

### Responsibility of The Graduate Coordinator of the Master of Science in Integrative Biology Program.

The Coordinator of the Master of Science in Integrative Biology Program will be included in a departmental team that plans and evaluates the progress of graduate students. Also, solving critical problems that may arise within the program will be a part of the Coordinators duties. The Coordinator will be the resource person who enables faculty to focus on their roles as mentors. The main responsibilities of this position will be to develop and implement strategies, procedures, and indexes that support the promotion, admission, advising, assistantships, enrollment and forecasting of the Master of Science in Integrative Biology program. The Coordinator will report directly to the Department Chairs. The Coordinator will work very closely with the admissions officer and degree auditor to ensure that standard procedures are followed. The Coordinator will be the liaison person for both student and faculty. The coordinator is expected to:

- Coordinate staff and student workers in relation to the program
- Be involved in strategic planning for program growth, positioning, and marketing
- Engage directly with current and prospective students as needed
- Act as primary author of policies and procedures pertaining to the program
- Serve as a liaison between program and key partners including the Faculty, Staff, Other Departments, Registrar, Alumni Relations and community partners.
- Chair the MSIB Program Committee.
- Approve thesis committee membership for each graduate student.
- Consult with Department Chair and Assistant Chair on assigning teaching assistants to specific courses.
- Administer surveys for the purpose of program assessment.
- Maintain research portfolios for each student for the purpose of program assessment.
  - Manage tuition waivers
  - Approve course substitutions
  - Approve graduate student programs of study

### Procedures for Handling Grievances and Complaints

As a student at KSU, you have a right to a safe environment that facilitates your learning and intellectual development. Numerous policies exist to ensure these rights, and you should visit the Student Handbook to learn more about your rights and responsibilities.

(<https://catalog.kennesaw.edu/content.php?catoid=56&navoid=4179#top>)

If, in the course of your studies, you have a grievance or complaint, the Student Handbook provides detailed procedures for informal and formal resolution. The procedure for addressing grievances involving program of study and administration can be found under the heading “Grievance Procedures for Students” (<https://catalog.kennesaw.edu/content.php?catoid=56&navoid=4179#grievance>). Steps for managing complaints against faculty members are outlined in the section “Procedures for Handling Student Complaints Against Faculty Members” (<https://catalog.kennesaw.edu/content.php?catoid=56&navoid=4179#studentcomplaints>).

Whenever possible, conflicts should be resolved at the lowest level, and the Program Coordinator and the MCB and EEOB Department Chairs are available to consult with you on these matters.

#### Master of Science in Integrative Biology Program Committee

Graduate students will not typically have direct interactions with this committee. However, this committee plays an important role in your experience at KSU. This committee makes decisions on acceptance of applicants to the program and on awarding teaching assistantships and evaluating how well teaching assistants are meeting their responsibilities. The committee is also involved in assessing the program and developing any necessary revisions.

## Policies regarding the thesis process

A thesis that reports the results of an original investigation is required. The thesis will contain a thorough review of the primary literature of the research area in question. Analysis, discussion and conclusions of the research are required along with proposals for future work, as well as a discussion of how the research is integrative. The thesis is to be written by you, the student, and no one else. Thesis Masters degrees are not granted based on time and effort expended, but on the achievement of a significant research contribution as evaluated by the thesis committee.

- **Thesis committee membership** must be presented to the MSIB Graduate Coordinator for approval by **15 January** of your first academic year. A thesis committee will consist of a supervising professor (your “major professor”) from the MCB or EEOB departments and a minimum of two other professors, with at least one of these being KSU Graduate Faculty from the MCB/EEOB. At least three of the committee members must be tenure-track. Additional members with appropriate expertise (either professional or academic) within the area of study are permitted and need not be tenure-track professors or members of the department. Although the supervising professor must be Graduate Faculty from MCB/EEOB, additional committee members may be from other institutions (e.g., other universities, state and federal agencies such as USDA, Forest Service, etc.). Potential committee members from outside institutions must submit an application for Graduate Faculty Status at KSU as an “affiliate” (application can be found at <https://graduate.kennesaw.edu/faculty-resources/graduate-faculty-appointment.php>). In keeping with the philosophy of providing an integrative approach to the student’s education in biology, at least one of the members of the committee **must** be from outside the major professor’s subdiscipline.
- During the second semester of your first academic year, you will communicate your proposed research ideas with each member of that committee, write a research proposal, and gain approval for the research proposal in a formal meeting with the thesis committee. The research proposal should include:
  - an explanation of the research question
  - a review of the scientific literature relevant to that question, methods that will be used to address that question
  - a timeline with projected dates for each stage of the research including thesis writing and thesis defense.
  - a budget indicating estimated costs of equipment and supplies needed accomplish the research. The proposal budget must clearly indicate sources of funding including expenses that will be incurred by the department for supplies and equipment. **Thesis proposals** must be received by or before **June 30**.
- Once thesis committee membership has been established and the research proposal has been approved, it is expected that **you will meet with your committee at least once a semester** thereafter to discuss research progress and develop strategies for completion of the research.
- A departmental seminar (publicly advertised at least 10 days prior) followed by a thesis defense (attended by all members of your committee) is required and must occur at least one week prior to graduation. The thesis must be approved and signed by the Thesis Committee at least three days prior to graduation and should be submitted

(electronically) to the library at this time. The seminar and defense precede this deadline by a few days to allow for any changes suggested by the Thesis Committee during the defense. To allow sufficient time for evaluation, **you should submit a draft of the completed thesis to all members of the Thesis Committee at least two weeks prior to the scheduled defense.**

- The thesis is to be formatted as either a manuscript for submission to a peer reviewed journal in your field, following the guidelines for authors (your supervising professor can help you identify an appropriate journal), or as a thesis using a standard template (e.g. Microsoft Office Thesis template). Citations within the MSIB thesis must be in the Name-Year style system as described in style and format manual of The Council of Science Editors. The thesis should contain the elements found in a typical scientific paper including an abstract, introduction, material and methods, results, discussion, and literature cited. In addition to these elements, a final section (titled “Integration of the Thesis Research”) should address how the thesis research is integrative (i.e. how the thesis research approach involves multiple scales within biology or disciplines outside of biology), or how the thesis results are potentially useful at other scales within biology or for disciplines outside of biology.
- During the course of your thesis research, you must maintain a record of all scholarly products (posters, talks, workshops, technical reports, and published papers). This record must be presented to the MSIB Program Coordinator prior to graduation.

## Coursework:

In addition to a thesis generated by original research, the degree will require 36 credit hours total: 10-14 credit hours of Thesis Research (including the 1-hour Master’s Thesis Defense), 12 credit hours of required graduate courses (including a required Graduate Seminar experience, and another 10-14 credit hours of graduate-level electives. A maximum of nine credits of 6000-level courses, and no more than two credits of 6000-level Seminar, can be applied toward the degree. Maximum credit as “Research for Master’s Thesis” applicable toward degree is thirteen credit hours. Your thesis committee may require additional remedial course work (these will not count toward the degree, nor will they be counted as hours needed to qualify for teaching assistantships).

Graduate-level courses:

- **Advanced Evolutionary Analysis** – BIOL 6413 - 3 credits
- **Professional Aspects in Biology\*** - BIOL 7100 - 3 credits
- **Integrative Biology\*** - BIOL 7200 - 3 credits
- **Research Methods across Biology\*** – BIOL 7300 - 4 credits
- **Ecological Physiology** – BIOL 7333 - 4 credits
- **Multidisciplinary Approaches to Ecological Questions** – BIOL 7400 - 3 credits
- **Molecular and Microbial Approaches to Pathogenesis** - BIOL 7478 - 3 credits
- **Current Topics in Integrative Biology Seminar\*** - BIOL 7500 - 1 credit
- **Cell Signaling** – BIOL 7634 - 3 credits
- **Computational Biology** – BIOL 7638 - 3 credits
- **Research for Master’s Thesis\*** – BIOL 7990 – 1 to 9 credits (up to 13 total credits)

(See syllabus in Appendix A)

- **Directed Studies** – BIOL 7950 – 1 to 4 credits
- **Master's Thesis Defense\*** – BIOL 7999 – 1 credit\*\* (See syllabus in Appendix B)

\* Required courses

\* BIOL 7999 should only be taken in the semester in which you plan to graduate.

The following courses are considered to be integrative in nature and are cross-listed (with additional course requirements for graduate credit):

- **Comparative Vertebrate Anatomy** – BIOL 4350/ BIOL 6350 (4 credit hours)
- **Cell and Molecular Biology** – BIOL 4410/ BIOL 6410 (3 credit hours)
- **Introduction to Bioinformatics** – **BIOL 4415/ BIOL 6415** (4 credit hours)
- **Plant Physiology** – BIOL 4420/ BIOL 6420 (4 credit hours)
- **Plant Ecology** – BIOL 4422/ BIOL 6422 (4 credit hours)
- **Medical microbiology** – BIOL 4460/ BIOL 6460 (4 credit hours)
- **Virology** – BIOL 4475/ BIOL 6475 (3 credit hours)
- **Bioethics** – BIOL 4486/ BIOL 6486 (3 credit hours)
- **Special Topics in Biology\*** - BIOL 4490/ BIOL 6490 (1-4 credit hours) –topics recently taught under this course number are considered integrative and include **Bioinformatics, Conservation Genetics, Restoration Ecology, Cancer Biology, and International Research Experience**
- **Molecular Genetics** BTEC 4100/6100 (3 credit hours)
- **Diagnostic Microbiology**– BTEC 4800/6800 (3 credit hours)
- **Advanced Topics in Anatomy & Physiology** - **BIOL 4610** (1-4 credit hours)
- **Advanced Topics in Ecology & Evolution** - **BIOL 4620** (1-4 credit hours)
- **Advanced Topics in Cell & Molecular Biology** - **BIOL 4630** (1-4 credit hours)

The following graduate courses outside of the department are considered to be appropriate electives for Integrative Biology:

- **Statistical Methods** – STAT 7100 (3 credit hours)
- **Design and Analysis of Human Studies** (epidemiology) - STAT 8125
- **Advanced Topics in Biochemistry** - CHEM 6510 (3 credit hours)
- **Chemical Biology** - CHEM 7500 (3 credit hours)
- **Physical and Analytical Methods** - CHEM 7600 (3 credit hours)
- **Introduction to Bio-Informatics** - CS 8550 (3 credit hours)
- Any other graduate level course that is deemed appropriate by the student's thesis committee.

Graduate courses may be taken at other Commission of Colleges (COC) regionally accredited institutions; justification must be provided for taking courses with similar content to those offered at KSU. All transfer courses must be approved by the student's thesis advisor and evaluated and approved by the MSIB Program Coordinator in order to

satisfy degree requirements at KSU (minimum grade of B will be accepted for transfer courses, and a maximum of 6 transfer credits will be allowed). Courses used for transfer credit must have been finished within five years of completion of MSIB and cannot reduce residency requirements. Transfer grades are not used in calculating semester, summer term, or cumulative grade-point averages.

To take classes at other institutions within the Atlanta Regional Council of Higher Education (ARCHE; e.g. Georgia Institute of Technology, Georgia State University, etc.), students should visit the Cross Registration webpage (<https://registrar.kennesaw.edu/student-registration/cross-registration.php>) for eligibility requirements, restrictions, member institutions, and procedures.

**Tentative course offering schedule:**

| <b>Fall</b>                      | <b>Spring</b>  | <b>Summer</b>                | <b>Fall</b>                      | <b>Spring</b>                        |
|----------------------------------|--|------------------------------|----------------------------------|--------------------------------------|
| Integrative Biology *            | Research Methods across Biology *                    |                              | Integrative Biology*             | Research Methods across Biology *    |
| Professional Aspects in Biology* | Multidisciplinary Approaches to Ecological Questions |                              | Professional Aspects in Biology* | Microbial and Molecular Pathogenesis |
| Computational Biology            | Cell Signaling                                       |                              | Ecological Physiology            |                                      |
| Graduate Seminar*                | BIOL Seminar   |                              | BIOL Seminar                     | Graduate Seminar*                    |
| Research for Master's Thesis     | Research for Master's Thesis                         | Research for Master's Thesis | Research for Master's Thesis     | Research for Master's Thesis         |

**Sample program of study:**

| <b>Fall</b>                                   | <b>Spring</b>   | <b>Summer</b> | <b>Fall</b>                               | <b>Spring</b>                                     |
|---|---|---------------|---|---|
| Integrative Biology *<br>4 credits            | Research Methods across Biology *<br>3 credits                    |               | Ecological Physiology<br>4 credits        | Microbial and Molecular Pathogenesis<br>3 credits |
| Professional Aspects in Biology*<br>3 credits | Multidisciplinary Approaches to Ecological Questions<br>3 credits |               | Any 6000-level course<br>3 credits        | Thesis Defense<br>1 credit                        |
| Graduate Seminar*<br>1 credit                 |   |               |   | Graduate Seminar*<br>1 credit                     |
| Research for Master's Thesis<br>1 credit      | Research for Master's Thesis<br>3 credits                         |               | Research for Master's Thesis<br>2 credits | Research for Master's Thesis<br>4 credits         |
| 9 credits                                     | 9 credits   |               | 9 credits                                 | 9 credits   |

\* Required courses

### Policies regarding tuition waivers

The graduate college will typically waive tuition for every Teaching Assistant and Research Assistant up to a maximum of 24 hours per year. Students may take between 9-12 hours in Fall and Spring, and tuition waivers will cover the remaining hours (of the maximum 24) for the summer, even if students are not teaching for the department or college during the summer semester. **Tuition will not be waived for credit hours that are in addition to the 36 hours required for the degree**, nor for course taken at other institutions unless they are arranged through Cross Registration at ARCHE institutions. Students admitted to the MSIB program who are not GTAs or GRAs are not typically eligible for tuition waivers.

### Policies regarding health insurance

Teaching and Research Assistants are required to have health insurance and will be automatically enrolled in (and charged for) a University System of Georgia student health insurance plan. Those that are enrolled in another existing health insurance plan may opt out. Graduate students supported on GRA, GA, or GTA, or international students on a student visa (F-1), are required to have health insurance.

### Continuous Enrollment Policy

Students enrolled in a Graduate degree program must register for at least one course in at least one semester per academic year in order for the original program requirements for their degree to remain unchanged unless a Leave of Absence has been approved. All students who have registered at least once for courses titled thesis, dissertation or project must be continuously enrolled every semester thereafter, including the semester of graduation. Summer registration is not required unless summer is the graduation term (though many campus services granted enrolled students, such as access to many library resources, may be unavailable). For more information on this policy, see the Kennesaw State University Graduate Catalog.

### Policies regarding computers

KSU Information Technology policy states that university-owned computer equipment (including monitors, keyboards, etc.) may only be moved or modified by IT personal. Submit a service request to IT for any needed modifications. University-owned computing equipment should not be employed for personal use such as gaming.



## Timeline

Dates listed below for one 2½ cycle from application to graduation.

| <b>Date</b>  | <b>Deadline</b>  |
|--|--|
| January 15 prior to 1 <sup>st</sup> year of study  | Deadline for application to the program  |
| April 1 prior to 1 <sup>st</sup> year of study   | Deadline for 1st round applicants to accept  |
| May 1 prior to 1 <sup>st</sup> year of study   | Deadline for 2nd round of applicants   |
| Week before fall semester of 1 <sup>st</sup> year of study   | Orientation and Teaching Assistant training (required for all first semester MSIB Graduate Students).  |
| January 15 of 1 <sup>st</sup> year of study  | Thesis committee formed and approved by the Graduate Coordinator.<br>Submit: <ul style="list-style-type: none"> <li>➤ Request for Approval of Thesis/Dissertation Committee form*</li> <li>➤ Program of Study form*</li> </ul>   |
| End of spring semester of 1 <sup>st</sup> year of study  | Approval of thesis research proposal by student's thesis committee.<br>Submit: <ul style="list-style-type: none"> <li>➤ Thesis/Dissertation Proposal Approval form*</li> <li>➤ Electronic version of proposal to the MSIB Program Coordinator and Department Chair</li> </ul>  |
| August 1 to November 1 of the 2 <sup>nd</sup> year of study  | Graduate students should see their Program Director for the petition to graduate. After the petition to graduate is received by the Office of Registrar, a graduation fee is assessed and a degree audit is completed in four to six weeks, which will be mailed accordingly.<br><a href="https://web.kennesaw.edu/registrar/students/graduation_main#instructions">https://web.kennesaw.edu/registrar/students/graduation_main#instructions</a> |
| At least one week prior the graduation date for the semester in which the student plans to graduate (typically spring semester of 2 <sup>nd</sup> year of study)   | Last day for thesis presentation and defense.  |
| At least three days prior the graduation date for the semester in which the student plans to graduate (typically spring semester of 2 <sup>nd</sup> year of study) | Last day for thesis approval and submission to the library. Submit: <ul style="list-style-type: none"> <li>➤ Thesis/Dissertation Defense Outcome form*</li> <li>➤ Final Submission of Thesis form*</li> <li>➤ Electronic version of thesis to library through Digital Commons (each student must first create an account)</li> <li>➤ Electronic version of thesis to the MSIB Program Coordinator</li> </ul>                                     |

Forms are located at <http://graduate.kennesaw.edu/students/forms.php>

## PART 2: THE TEACHING ASSISTANT

### Workloads and responsibilities for Teaching Assistants

Teaching Assistants are expected to function as both professionals and students, providing quality instruction while making satisfactory normal progress towards their degree. Teaching Assistants in the MSIB will generally be responsible for teaching two to three laboratory sections per semester. Teaching Assistants will be under the direct supervision of the instructor of record for the class section to which they have been assigned. In addition, teaching assistants must work with course coordinators to ensure quality and consistency across lab sections in teaching content, and with the lab coordinator to ensure laboratory safety and to effectively manage shared supplies and equipment. Duties include (as applicable to a given course):

- Instruction of undergraduate students in the laboratory
- Grading laboratory assignments and laboratory practicals
- Taking attendance
- Reporting in a timely manner attendance and grades to the instructor of record (the TA is not instructor of record).
- Attending pre-lab training sessions preceding each week of formal lab instruction for the course that they teach.
- Maintaining regular office hours.
- Proctoring of exams for lecture portion of the course, as necessary; the exam dates will be published within the first week of the course so that TAs will be able to plan their time.

Teaching Assistants must be prepared for their laboratory sessions and maintain professional and mentoring relationships with their students. Teaching Assistants must not advocate, condone nor tolerate discrimination against any individual on the basis of race, religion, color, sex, age, national origin or ancestry, marital status, parental status, sexual orientation, or disability. It is strongly recommended that Teaching Assistants do not “friend” on Facebook and other social media undergraduate students in the classes they teach, as it is easy for others to misconstrue communications between TAs and their students. Teaching Assistants are not allowed to accept payments or gifts for tutoring students in the sections that they teach.

Of the 19.5 hours per week that a Teaching Assistant is expected to work, the Teaching Assistant’s efforts should be directed toward instruction and evaluation of students in the laboratory, and not toward preparation of laboratory materials or toward instruction and evaluation of students in lecture, unless previously discussed with and approved by the MSIB Program Committee. Teaching Assistants will not be expected to work more than 19.5 hours per week on average during the semester in performance of the duties stated above.

Teaching Assistants must complete a training program prior to first semester of teaching (i.e. the pre-semester module of Professional Aspects in Biology course).

Preference when assigning graduate student office space will be given to students holding teaching assistantship positions. Supervising Professors are expected to provide individual

space for their graduate students within the faculty's assigned research space if general graduate student office space is unavailable.

### Assignment of Teaching Assistants

Assignment of TA's is based on the following criteria:

1. Departmental course needs. Lower division, multi-section courses must be staffed first, then upper-division courses. Undergraduate enrollment in these courses is the critical factor used in determining to which courses TA's are assigned.
2. TA's level of expertise in the subject matter as demonstrated by extent and quality of prior course work, research area or other criteria.
3. Enrollment as full time (defined by KSU as 9 semester hours).
4. Requests of faculty and students although it is not always possible to honor such request.
5. The ability to communicate well is especially important in laboratory instruction, so every attempt is made to assign only students with above average communication skills to such courses.
6. Completion of training program prior to first semester of teaching (i.e. the pre-semester module of Professional Aspects in Biology course), and commitment to attend pre-lab training sessions preceding each week of formal lab instruction for the course that they teach.

### Faculty and Staff Involved in the Supervision of Teaching Assistants

#### *Instructor of Record for Sections to which Teaching Assistants are Assigned*

The Instructor of Record is a faculty member who is responsible for effectively communicating with the Teaching Assistant assigned to that course section for the purpose of receiving attendance records and grades on laboratory assignments and practicals. For courses in which the department has not designated a Laboratory Section Coordinator, the Instructor of Record is the Laboratory Section Coordinator (see responsibilities in the next section).

#### *Laboratory Section Coordinator*

The Laboratory Section Coordinator is responsible for familiarizing the Teaching Assistant(s) with the laboratory curriculum. This task will be primarily accomplished through pre-lab training sessions preceding the Teaching Assistant's period of formal lab instruction. The Laboratory Section Coordinator must provide the Teaching Assistant with written materials that clearly outline the procedures to be followed by students in the lab, the assignments or assessments expected for the lab, and rubrics or guidance for grading. The Laboratory Section Coordinator must provide Teaching Assistants with a schedule of exams to be proctored (if applicable) within the first week of the course. Assignments and assessments should be designed to allow the Teaching Assistant to receive pre-lab training, deliver their lab sections, and complete grading within the maximum average of 19.5 hours per week allotted for teaching. Should grading result in teaching responsibilities in excess of 19.5 hours per week, the Laboratory Section Coordinator will be required to meet with the department chair and a member of the MSIB Program Committee to develop strategies to rectify the situation. The Laboratory Section Coordinator should use undergraduate Student Assistants, not Teaching Assistants, for prepping laboratory exercises.

The Laboratory Section Coordinator will also be responsible for:

- Advising Teaching Assistants on planning and grading of laboratory assignments and exams.
- Answering questions concerning course-related content. The Laboratory Section Coordinator may request that the Teaching Assistant attend the lectures associated with the course for the purpose of familiarizing the TA with the course content.
- Discussing with Teaching Assistants problems associated with conduct of students in the laboratory that jeopardizes safety or interferes with student learning.

#### *Department Laboratory Coordinator and Undergraduate Student Assistants*

The Department Laboratory Coordinator is a staff member who is responsible for supervising undergraduate Student Assistants. These Student Assistants are responsible for setting up equipment and materials for each week of lab. The Department Laboratory Coordinator is not responsible for familiarizing the Teaching Assistant with the laboratory curriculum (that is the task of Laboratory Section Coordinator). The undergraduate Student Assistants are not responsible for teaching laboratory curriculum. Should you need supplies or have problems with equipment during a laboratory session, the Department Laboratory Coordinator will be able to assist the Teaching Assistants.

#### *Lab Safety Officer*

The Lab Safety Officer is the head lab coordinator, purchaser and general lab management. The lab safety officer, along with the lab coordinators, can provide assistance on matters involving safety, purchasing, equipment, materials and supplies, as well as most other laboratory issues. The Lab Safety Officer maintains the safety of the labs and lab users, and provides safety training for students, faculty and staff.

#### *Moving from Teaching to Research Assistantship*

Several mechanisms may permit a TA to move to RA status. The College of Science and Math and the MSIB program has committed to making as many midyear TA to RA transitions as possible. Although this is a positive opportunity, it is important to recognize that the TA contract as written covers one academic year at a time and thus especially mid-year (TA fall, RA spring) transitions to RA may not always be possible. Mid-semester transitions to RA are never possible.

Research mentors or students should make the request to move the student to RA status as soon as possible after notification of funding.

In order to be considered, the request to move a student to RA status must be received in writing by the **MSIB Coordinator** and the **Biology Course Scheduler** by:

November 1 – for a transition to RA for spring semester

May 15 – for a transition to RA for fall semester

Requests should include the source of funding that will support the student's RA status.

### PART 3: THESIS PROPOSAL FORMS

The following forms should be completed and signed by the student, major professor, thesis committee members, and MSIB coordinator following every thesis committee meeting. Please keep the forms in the student/mentor binder as a log of the students' progress through their thesis research.



## Thesis/Dissertation Proposal Approval

Name \_\_\_\_\_ KSU ID \_\_\_\_\_  
Email \_\_\_\_\_ Phone Number \_\_\_\_\_  
Program \_\_\_\_\_ Advisor \_\_\_\_\_

**Title:** \_\_\_\_\_  
\_\_\_\_\_

Degree Type (circle):      DBA    DNS    EDD    EDS    Masters    PHD

The student has completed the oral defense of the proposal. The committee has decided:

The proposal is accepted

The proposal is accepted with the following qualifications:

\_\_\_\_\_  
\_\_\_\_\_

### Signatures

Thesis/Dissertation Chair \_\_\_\_\_ Date \_\_\_\_\_

Major Professor \_\_\_\_\_ Date \_\_\_\_\_

Program Director \_\_\_\_\_ Date \_\_\_\_\_

Department Chair \_\_\_\_\_ Date \_\_\_\_\_

Graduate Dean \_\_\_\_\_ Date \_\_\_\_\_

## Research Proposal Assessment Instrument

### *Program-level Student Learning Outcome:*

- 1) Students who successfully complete a Master of Science in Integrative at KSU will be highly proficient doing scientific research.
- 2) Students who successfully complete a Master of Science in Integrative Biology at KSU will gain a deep understanding of Integrative Biology

Specific Student Learning Outcome: Students in the Master of Science in Integrative at KSU will develop and present to a faculty thesis committee a proposal for their thesis research that will includes an explanation of the research question, a review of the scientific literature relevant to that question, methods that will be used to address that question, and a budget indicating estimated costs of equipment and supplies needed accomplish the research.

| Criterion<br>A student's<br>proposal should:                   | <i>Exceeding<br/>expectations</i>  | <i>Meeting<br/>expectations</i>  | <i>Not meeting<br/>expectations</i>  |
|--|--|--|--|
| Develop a central thesis question that is original (SLO#1)     | Question has not been addressed by other researchers   | Question has been addressed, but proposal presents a novel approach or asks question in a novel context                          | Question, approach to the question, and context of question are not original   |
| Justify research with relevant scientific literature (SLO#1)   | All citations are relevant to the question and approach proposed   | Most citations are clearly relevant to the question and approach proposed  | Most citations are not relevant to the question and approach proposed  |
| Demonstrate understanding of the scientific literature (SLO#1) | Student is able to provide detailed knowledge of studies cited in proposal   | Student is able to provide general understanding of any study cited in proposal  | Student cannot summarize approaches and conclusion to literature cited in proposal   |
| Demonstrate how the proposed research is integrative (SLO#2)   | Student can clearly explain how proposed research incorporates or is of value to more than two fields of study outside their subdiscipline | Student can clearly explain how proposed research incorporates or is of value to 1-2 fields of study outside their subdiscipline | Student cannot clearly explain how proposed research incorporates or is of value fields of study outside their subdiscipline |

|  |   |   |   |
|--|---|---|---|
|  |   |   |   |
| Develop an experimental design consistent with accepted scientific method and demonstrates that the student is proposing a testable question (SLO#1) | Experimental design not only considers important elements typical in scientific research, but is original in its approach to the question being asked | Experimental design considers important elements typical in scientific research (e.g. replication, confounding factors, defined treatments) | Experimental design does not consider important elements typical in scientific research |

|  |   |  |   |
|--|---|--|---|
| Present a budget that covers expenditures needed to complete the proposed research (SLO#1) | Budget lists all expenditures associated with the project, justifies why items are needed, and clearly indicates how experiment was designed to reduce wastefulness | Budget list all necessary major expenditures | Budget fails to include major expenditures or includes items that are not necessary to answering the central question of the thesis |
|--|---|--|---|

The major professor and other faculty thesis committee members will complete this assessment instrument after reviewing a student's written proposal and meeting with the student as committee.



## PART 4: THESIS SUBMISSION AND APPROVAL FORMS

Use the following forms for approval and assessment of the final thesis.



## Thesis/Dissertation Defense Outcome

|               |                    |
|---------------|--------------------|
| Name _____    | KSU ID _____       |
| Email _____   | Phone Number _____ |
| Program _____ |                    |

**Title:** \_\_\_\_\_  
\_\_\_\_\_

Thesis/Dissertation Defense Date: \_\_\_\_\_

- Passed
- Failed
- Passed with Revisions (attach revisions)

---

### Signatures

|                                 |            |
|---------------------------------|------------|
| Thesis/Dissertation Chair _____ | Date _____ |
| Committee Member _____          | Date _____ |
| Committee Member _____          | Date _____ |
| Committee Member _____          | Date _____ |
| Committee Member _____          | Date _____ |
| Program Director _____          | Date _____ |
| Department Chair _____          | Date _____ |
| Graduate Dean _____             | Date _____ |

## Research Portfolio Assessment Instrument

### Program-level Student Learning Outcome:

- 1) Students who successfully complete a Master of Science in Integrative at KSU will be highly proficient doing scientific research.
- 2) Students who successfully complete a Master of Science in Integrative Biology at KSU will gain a deep understanding of Integrative Biology

Specific Student Learning Outcome: A record of all scholarly products (posters, talks, workshops, technical reports, and published papers) generated by students as a result of research completed at KSU will be collected and maintained.

| <b>Criterion</b>  | <b><i>Exceeding expectations</i></b>   | <b><i>Meeting expectations</i></b>   | <b><i>Not meeting expectations</i></b>   |
|---|--|--|--|
| First author presentations at professional conferences (SLO#1)  | More than 2 presentations at professional conferences with at least one conference being regional, national, or international  | 1-2 presentations at professional conferences with at least one conference being regional, national, or international        | No presentations at regional, national, or international professional conferences                                  |
| Manuscripts for publication in peer-reviewed journals (SLO#1)   | A manuscript based on thesis research has been accepted for publication in a peer-reviewed journal, or a manuscript based on other research has been prepared and submitted while enrolled in the MSIB program | A manuscript based on thesis research is in review, or sections of thesis have been written up in a publication-ready format | No manuscripts based on thesis research in a publication-ready format have been completed                          |
| Thesis research proposal (SLO#1)  |  | Thesis research proposal accepted by student's thesis committee  | Thesis research proposal not accepted by student's thesis committee  |
| Research skills developed as a result of thesis research and coursework completed as part of the MSIB program (SLO#1) | Six or more research skills acquired during MSIB program   | At least five research skills acquired during MSIB program   | Fewer than five research skills acquired during MSIB program   |
| Make up of thesis committee reflects an integrative approach to research (SLO#2)                                      | More than one member of thesis committee is from a discipline outside the subdiscipline of the student's major professor   | One member of thesis committee is from a subdiscipline outside the subdiscipline of the student's major professor            | No members of thesis committee are from a subdiscipline outside the subdiscipline of the student's major professor |

## MSIB Student Self-Assessment Form

Upon completion of the thesis, please complete the following form to the best of your ability. This will be used to help assess MSIB program effectiveness and to make changes as necessary. The MSIB Program Coordinator will use a rubric to analyze accomplishments listed in student research portfolios.

### *Format of Research Portfolio*

*List presentations at professional conferences based on data collected as part of MSIB thesis research (include email attachments of presentations).*

*List manuscripts for peer-reviewed journals based on your thesis research or based on other research prepared and submitted while enrolled in the MSIB program. Indicate all authors and whether manuscripts have been accepted for publication, are in review, or in preparation near completion. Do not list manuscripts that have not been completed. Include email attachments of manuscripts and publications.*

*List funding proposals submitted while enrolled in the MSIB program and indicate whether proposals have been funded. Include email attachments of funding proposals.*

*List the title of your thesis research proposal, the date accepted by your thesis, and the names and institutions of those on your thesis committee. Include an email attachment of your proposal.*

*List research skills developed as a result of thesis research and coursework completed as part of the MSIB program (indicate course, semester and grade).*

*List any science-related professional activities (e.g. positions held on KSU committees, in student government, and within professional organizations, involvement in science-related community service, and departmental/college service).*

*List members of your thesis committee, their areas of expertise, and the department and institution to which they belong.*

## Thesis Defense Assessment Instrument

### *Program-level Student Learning Outcome:*

- 1) Students who successfully complete a Master of Science in Integrative at KSU will demonstrate high proficiency at doing scientific research.
- 2) Students who successfully complete a Master of Science in Integrative Biology at KSU will express a deep understanding of Integrative Biology

Specific Student Learning Outcome: Students in the Master of Science in Integrative at KSU will write an original thesis of their research, make a public oral presentation of their thesis research, and defend their thesis research in an oral examination with the students' thesis committee members.

| <i>Criterion</i>   | <i>High pass (3)</i>   | <i>Pass (2)</i>   | <i>Low pass (1)</i>  | <i>Fail (0)</i>  | <i>Assessment<br/>(3, high pass; 2, pass; 1<br/>low pass; 0, fail)</i> |
|--|--|---|--|--|--|
| <b>A student's thesis and oral presentation should:</b>        |  |   |  |  |  |
| Identify a central thesis question that is original (SLO#1)    | Question has not been addressed by other researchers                       | Question has been addressed, but proposal presents a novel approach or asks question in a novel context | Question has been addressed, but proposal presents a barely adequate approach  | Question, approach to the question, and context of question are not original       | 3 2 1 0  |
| Justify research with relevant scientific literature (SLO#1)   | All citations are relevant to the question and approach proposed           | Most citations are clearly relevant to the question and approach proposed                               | A few citations are relevant to the question and approach proposed             | Most citations are not relevant to the question and approach proposed              | 3 2 1 0  |
| Demonstrate understanding of the scientific literature (SLO#1) | Student is able to provide detailed knowledge of studies cited in proposal | Student is able to provide general understanding of any study cited in proposal                         | Student is able to provide a weak understanding of any study cited in proposal | Student cannot summarize approaches and conclusion to literature cited in proposal | 3 2 1 0  |

|   |  |   |  |  |         |
|---|--|---|--|--|---------|
| Demonstrate how the proposed research is integrative (SLO#2)  | Student can clearly explain how proposed research incorporates or is of value to more than two fields of study outside their subdiscipline               | Student can clearly explain how proposed research incorporates or is of value to 2 fields of study outside their subdiscipline  | Student can somewhat explain how proposed research incorporates or is of value to 1-2 fields of study outside their subdiscipline  | Student cannot clearly explain how proposed research incorporates or is of value fields of study outside their subdiscipline   | 3 2 1 0 |
| Develop an experimental design consistent with accepted scientific methodology and appropriate statistical analysis (SLO#1) | Experimental design not only considers important elements typical in scientific research, but is original in its approach to the question being asked    | Experimental design considers important elements typical in scientific research (e.g. replication, confounding factors, defined treatments)                                       | Experimental design considers some important elements typical in scientific research (e.g. replication, confounding factors, defined treatments)                                 | Experimental design does not consider important elements typical in scientific research  | 3 2 1 0 |
| Defend their data via oral questioning (SLO#1)  | Oral presentation is clear, accurate, data slides are well designed, questions are answered with grace, demonstrating a thorough knowledge of the field. | Oral presentation is fairly clear and accurate, data slides are of adequate design, questions are answered mostly completely, demonstrating an acceptable knowledge of the field. | Oral presentation is sometimes clear but has errors, data slides are not well designed, some questions are not answered completely, demonstrating a weak knowledge of the field. | Oral presentation is poor, data slides are not well designed, struggles to answer questions, almost no knowledge of the field. | 3 2 1 0 |

The major professor and other faculty thesis committee members will complete this assessment instrument after reviewing a student's written thesis, and meeting with the student as committee to assess their public presentation and private oral defense.

## Individual Development Plan

To help visualize and map out your goals in the MSIB program and beyond, please complete an individual development plan based on the draft outline below. Complete this plan in consultation with your mentor. Don't forget that plans can change so this document is flexible and merely a guideline to help you through the next two years.



**Individual Development Plan (example)**

**Student:** \_\_\_\_\_

**KSU ID:** \_\_\_\_\_

**Degree Program:** MSIB

**Year of Study in Program:**

**Academic Year:**

**Thesis Advisor:**

**Committee Members:**

**Requirements for graduation:**

1. 36 credits (9 per semester)
2. 10-14 of electives
3. 2 of seminar
4. 10-14 of research
5. 3.0 GPA
6. Completed Thesis

**Fall year one**

|                          | Description  |
|--------------------------|--|
| Classes                  | <ul style="list-style-type: none"><li>• BIOL 7100 – Professional Aspects in Biology (3)</li><li>• BIOL 7200 – Integrative Biology (3)</li><li>• BIOL 7500 – Current Topics in Integrative Biology Seminar (1)</li><li>• BIOL 7990 – Research for Master’s Thesis (1)</li><li>• Total Credit Hours: 9</li></ul> |
| Research Goals           | Background research on topic. Learn skills appropriate to research   |
| Professional Development | Write NSF grant proposal for BIOL 7100. Teaching Assistant for BIOL 1107L.   |

### Spring year 1

|                          | Description   |
|--------------------------|---|
| Classes                  | <ul style="list-style-type: none"><li>• BIOL 7300 – Research Methods Across Biology (4)</li><li>• CHEM 7500 – Chemical Biology (3)</li><li>• BIOL 7500 – Current Topics in Integrative Biology Seminar (1)</li><li>• BIOL 7990 – Research for Master’s Thesis (1)</li><li>• Total Credit Hours: 9</li></ul> |
| Research Goals           | Gain mastery of more thesis-specific skills. Hold first committee meeting.  |
| Professional Development | Present research at local conference.<br><br>Teaching Assistant for BIOL 1107L<br><br>Begin extracurricular courses in R programming and statistical analysis   |

### Summer year 1

|                          | Description  |
|--------------------------|--|
| Classes                  | N/A  |
| Research                 | Continue thesis research. Learn more techniques. Have draft for introduction and methods for thesis complete. Hold second committee meeting end of summer. |
| Professional Development | Work as a GRA in mentor’s lab. Continue extracurricular courses in R. Begin coursework in object-oriented programming with Python.                         |

## Fall year 2

|                          | Description  |
|--------------------------|--|
| Classes                  | BIOL 6490 – Special Topics (3)<br>Elective (3)<br>BIOL 7990 – Research for Master’s Thesis (3)<br>Total Credits: 9   |
| Research                 | More thesis research. Begin to assemble final figures for thesis. Hold third committee meeting end of fall.  |
| Professional Development | Apply for PhD programs. Give poster presentation at Emory STEM Symposium. Continue programming coursework in Python. Take MATLAB associate certification exam. |

## Spring year 2

|                          |   |
|--------------------------|---|
| Classes                  | BIOL 6399 – Seminar (1)<br>BIOL 7990 – Research for Master’s Thesis (7)<br>Total Credits: 8*<br>*Current advice is to hold 1 credit in case you need to defend your thesis in the summer. |
| Research                 | Finish up any research that could not be completed by fall. Write thesis and work on publication of results. Hold fourth committee meeting. Defend thesis end of spring.                  |
| Professional Development | Continue work on object oriented programming in Python. Take course in Data Structures and Algorithms. Interview for PhD programs.  |

## Summer Year 2

|          |  |
|----------|--|
| Research | Work on publication if not done already. Train new lab members. Defend thesis if not done already. |
|----------|--|

## Appendix A

### **BIOL 7990 Research for Master's Thesis Syllabus: Spring 2022**

**Instructor:** Troy Mutchler  
**Phone:** 470-578-4360  
**Lab:** SC 364  
**E-mail:** tmutchle8@kennesaw.edu

**Office:** SC322  
**Office Hours:** By appointment

**Student:**  
**Email:**  
**KSU ID:**

**BIOL 7990. Research for Master's Thesis.** *Enrollment in the MSIB program and approval of the PI.* Research and thesis writing while enrolled for a master's degree under the direction of faculty members.

**CRN: 16881**

**CREDIT HOURS (1 – 9) REQUESTED:**

#### **Course Materials:**

Research specific literature, protocols, and other readings to be provided by supervising faculty.

#### **Course Learning Objectives**

Upon completing this course, you will be able to:

1. Understand safe working practices in a research laboratory;
2. Describe and demonstrate the correct use of statistical and bioinformatic computer packages appropriate to the research;
3. Describe and demonstrate relevant laboratory protocols;
4. Communicate research progress, challenges, and results to your research team and/or faculty supervisor;
5. Any other techniques as required to advance your research project(s).

#### **Attendance**

*For each hour of credit, at least 3 hours per week of work are required.* That being said, you (the student) are doing this for your own advancement, so the pace of research should match the requirements for timely completion of the thesis.

#### **Evaluation**

You will be required to maintain a lab notebook that documents your work and summarizes your understanding of lab readings and individual instruction by the faculty advisor. Parallel electronic documentation will also be required as necessary. The final grade will be based on the your ability to demonstrate safe research conduct, proper conduct of experimental protocols, scientifically valid analysis and interpretation of data, and effective communication to a scientific audience.

Evaluation of research experience will be based on the:

Correct application of methodologies in biological research as assessed by your faculty advisor (60%)

Content of the laboratory notebook as assessed by your faculty advisor (30%)

Presentation to faculty advisor, thesis committee, and peers (or public presentation at a research symposium) that demonstrates the student's understanding of the methodologies (5%)

Written paper summarizing the semester's activities that contributes to the final thesis (5%)

Grading Scale **Satisfactory = 70-100; Unsatisfactory = 69.99-below**

All students are expected to follow the academic honesty guidelines as written in the **KSU catalogue** under "**General Policies and Regulations of Student Life**". Please familiarize yourself with these rules especially plagiarism and cheating and destruction of library materials. Failure to follow these guidelines at a minimum will result in a failing grade for the course.

### **Laboratory Safety**

**Every student is required to complete safety training assigned by KSU Environmental Health and Safety in consultation with the Program Coordinator. Your specific training needs may differ from other students in the program depending on research area and associated exposures and risks. The training will take place on Precipio, which can be accessed at the KSU EHS website: [Training Management - Environmental Health and Safety \(kennesaw.edu\)](https://ehs.kennesaw.edu/training-management-environmental-health-and-safety)**

**Students must also undergo Laboratory Safety Training with Dale Zaborowski, Laboratory Safety Officer. This training may take place as part of your orientation, but if not, you can visit <https://facultyweb.kennesaw.edu/dzaborow/index.php> to schedule a safety training session.**

### **Departmental and University Policies**

*University Policy on Academic Integrity:* Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the university's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to university materials, misrepresentation/ falsification of university records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement. See also <https://scai.kennesaw.edu/>.

*Accommodation for Students with Disabilities:* Kennesaw State University provides program accessibility and reasonable accommodations for persons defined as disabled under Section 504 of the Rehabilitation Act of 1973 or the Americans with Disabilities Act of 1990. A number of services are available to help disabled students with their academic work. In order to make arrangements for special services, students must visit the Office of Disabled Student Support Services and arrange an individual assistance plan. Certification of disability is required. Please contact the Office of Disabled Student Support Services for more information. The web page may be accessed at: <https://sds.kennesaw.edu/>

*Disruption of Campus Life Statement:* It is the purpose of the institution to provide a campus environment, which encourages academic accomplishment, personal growth, and a spirit of understanding and cooperation. An important part of maintaining such an environment is the commitment to protect the health and safety of every member of the campus community. Belligerent, abusive, profane, threatening and/ or inappropriate behavior on the part of students is a violation of the Kennesaw State University Student Conduct Regulations. Students who are found guilty of such misconduct may be subject to immediate dismissal from the institution. In addition, these violations of state law may also be subject to criminal action beyond the University disciplinary process.

**LAST DATE TO WITHDRAW WITHOUT ACADEMIC PENALTY:**



## Appendix B

### **BIOL 7999 Master's Thesis Defense**

#### **Syllabus**

**Instructor:** Troy Mutchler

**Office:** SC322

**Phone:** 470-578-4360

**Office Hours:** By appointment

**Lab:** SC 364

**E-mail:** tmutchle8@kennesaw.edu

**Student:**

**Email:**

**KSU ID:**

**BIOL 7999. Research for Master's Thesis.** *Prerequisite: Graduate Status and permission of the program director.*

*This course provides the capstone experience for students pursuing thesis research and writing while enrolled in the Master of Science in Integrative Biology (MSIB) degree program. The final and central requirement for awarding the MSIB degree is the independent completion of a substantial and original research project. Successful completion of this requirement is demonstrated through the production of a thesis, describing the research project and its results, and the defense of that thesis to the voting members of the student's faculty Thesis Committee. The quality of the thesis document and the defense are evaluated by the Thesis Committee to determine if the student has successfully completed this final requirement for the MSIB degree.*

**CRN: 13886**

**CREDIT HOURS: 1**

**Course Materials: n/a**

#### **Course Learning Objectives**

Upon completing this course, you, the student will be able to:

1. Use the scientific literature to develop a logical rationale for the research hypothesis and predictions;
2. Describe experimental procedures performed to generate empirical evidence;
3. Interpret data and statistical outcomes and evaluate evidentiary support for the hypothesis;
4. Compare research results to the scientific literature;
5. Evaluate the strengths and weaknesses of the thesis research, considering confounding variables, alternative explanations, and next steps as appropriate;
6. Communicate these elements orally to a diverse audience of scientists and non-scientists;
7. Respond concisely and cohesively to spontaneous oral questioning.

**Attendance**

You must organize and attend committee meetings and an oral defense of your thesis research, abiding by guidelines outlined in the MSIB Graduate Student Binder.

## **Evaluation**

You are required to deliver a public, oral presentation (~40 minutes in length) describing the rationale, methodologies, data outcomes, and significance of their thesis research. The presentation will be followed by a private question and answer session with the thesis committee. The final grade will be based on your ability to communicate clearly, draw scientifically sound conclusions, and position your research relative to the current understanding in the field.

Evaluation will be based on mastery of the course learning objectives as determined qualitatively by the majority consensus of the thesis committee members.

All students are expected to follow the academic honesty guidelines as written in the **KSU catalogue** under “**General Policies and Regulations of Student Life**”. Please familiarize yourself with these rules especially plagiarism and cheating and destruction of library materials. Failure to follow these guidelines at a minimum will result in a failing grade for the course.

## **Departmental and University Policies**

*University Policy on Academic Integrity:* Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the university’s policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to university materials, misrepresentation/ falsification of university records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the Department of Student Conduct and Academic Integrity (SCAI), which includes either an “informal” resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct’s minimum one semester suspension requirement. See also <https://scai.kennesaw.edu/>.

*Accommodation for Students with Disabilities:* Kennesaw State University provides program accessibility and reasonable accommodations for persons defined as disabled under Section 504 of the Rehabilitation Act of 1973 or the Americans with Disabilities Act of 1990. A number of services are available to help disabled students with their academic work. In order to make arrangements for special services, students must visit the Office of Disabled Student Support Services and arrange an individual assistance plan. Certification of disability is required. Please contact the Office of Disabled Student Support Services for more information.

The web page may be accessed at: <https://sds.kennesaw.edu/>

*Disruption of Campus Life Statement:* It is the purpose of the institution to provide a campus environment, which encourages academic accomplishment, personal growth, and a spirit of understanding and cooperation. An important part of maintaining such an environment is the commitment to protect the health and safety of every member of the campus community. Belligerent, abusive, profane, threatening and/ or inappropriate behavior on the part of students is a violation of the Kennesaw State University Student Conduct Regulations. Students who are found guilty of such misconduct may be subject to immediate dismissal from the institution. In addition, these violations of state law may also be subject to criminal action beyond the University disciplinary process.



***LAST DATE TO WITHDRAW WITHOUT ACADEMIC PENALTY:***