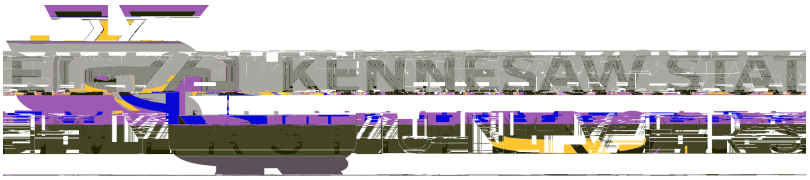

Student and Mentor Information Pack

Master of Science in Integrative Biology Program

Version 01.31.2024

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). The catalog 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
-

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 you to progress to the point of becoming a self-reliant researcher 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 your 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 etiquette, 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 professionals 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.

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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 Counhavi
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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 assessm

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 Coordinator's 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, assistantship, enrollment and forecasting of the Master of Science in Integrative Biology program. The Coordinator will 3 (a)i 3 (a)icir(a)inatty t the S department tais

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=71&navoid=6138#grievancehttps://catalog.kennesaw.edu/content.php?catoid=56&navoid=4179#grievance). The policy states, “There are numerous avenues through which students can pursue redress of grievances. Students are encouraged to always first begin with informal resolution directly with the individual and/or office with whom the student has a grievance. If an informal resolution cannot be reached, the student may next contact the supervisor of the individual and/or office. If the office has provided specific guidelines for filing a grievance the student should follow those established guidelines. It is always best to express concerns in writing (typically via email) and the email must come directly from the student’s KSU student email account.

To help ease the process for submitting formal written grievances, KSU has established a Concern website that provides a direct link to a submission database for issues related to University Services and Enrollment Services, along with mechanisms for reaching the Office of Victim Services and reporting Smoke/Tobacco violations. There is also a direct link for reporting discrimination, and links to other useful reporting sites, such as the Red Flag Report, EEO/Title IX, Student Conduct, Academic Standing, Human Resources, and the KSU Consumer Complaints and Appeals site. The link to the Concern webpage is: http://concern.kennesaw.edu/.http://concern.kennesaw.edu/

Steps for managing complaints against faculty members are outlined

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 integrated. The thesis is to be written by you, the student, and no one else. Thesis or master's 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 established by the grade submission deadline of your first academic semester. (See KSU's Academic Calendar for relevant semester to determine date) The Thesis Committee Approval Form (https://www.kennesaw.edu/graduate/docs/thesis-committee-approval.pdf) should be signed by all relevant parties and submitted to the Graduate College as described at https://www.kennesaw.edu/graduate/current-students/forms.php. The thesis committee must have at least three members. The supervising professor (your "major professor" and Chair of the thesis committee) and a minimum of two other professors are required, with at least one of these being KSU Graduate Faculty from EEOB or MCB. At least three of the committee members must be professors. [illegible]

- Hypothesis (a statement about what will be tested)
- Research plan consisting of the following modular components (usually represented by two or three Aims):
  - Research Aim (a specific research question that will be tested directly by experimental procedures)
  - Preliminary data (any data obtained so far in support of Research Aim's rationale)
  - Methods (a brief explanation of the research methodologies that will be deployed for a particular Aim)
  - Anticipated outcomes (a condense set of criteria that will be used to judge on the success of these Research Aim)
  - Possible alternatives (an overview of potential pitfalls and a brief description of workaround)
- Timetable (a table with projected dates for each stage of the research including thesis writing and thesis defense).
- Budget (an itemized summary of estimated costs of equipment and supplies needed to accomplish the proposed research plan; it also should include the expenses to present research at a conference. The proposal budget must clearly indicate sources of funding including any expenses that will be incurred by the department for supplies and equipment

Thesis proposals must be presented to the thesis committee, defended in a committee meeting, and approved by the supervising professor, Department Chair and Coordinator by the grade deadline of your second semester of the program (typically early May for students starting in the fall semester). Approval by the Department Chair at the time of proposal defense is critical to ensure that any necessary departmental funds are available to support the project. The Thesis Proposal Approval Form (thesis-proposal-approval.pdf (kennesaw.edu) must be completed and submitted to the Graduate College. The committee must also complete the Research Proposal

(https://digitalcommons.kennesaw.edu/) at this time

- 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 is required and should only be taken in the semester in which you plan to graduate. This course counts towards research credits.

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/studentregistration/cross-registration.php

Continuous Enrollment Policy

semester of 2nd year of study)	¾ Thesis Defense Assessment Instrument (completed by Thesis Committee)

Forms are located at https://www.kennesaw.edu/graduate/current-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

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, recitation 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

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 C0.9 (i (r)3 (a)30)Td [(t4S)-4 (a)4 (f) (

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PART 3: THESIS PROPOSAL FORMS

The Thesis Proposal Approval should be completed and signed by the appropriate individuals after approval of the thesis proposal. Because forms may change over time, please visit the Graduate College webpage (Graduate Student Forms - Graduate College (kennesaw.edu)) to check for the most up to date version of the Thesis Proposal Form. The form provided here is an example only.

The Research Proposal Assessment Instrument should also be completed by the thesis committee and sent to the Program Coordinator. You should use the form provided in this document.

Please keep copies of these forms in the student/mentor binder as a log of your progress through their thesis research.

Thesis/Dissertation Proposal Approval

Name KSU ID

Email

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 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 A student's proposal should:	Exceeding expectations	Meeting expectations	Not meeting expectations
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 12 fields of study outside their subdiscipline	Student cannot clearly explain how proposed research incorporates or is of value fields of study outside their subdiscipline

PART 4: THESIS SUBMISSION AND APPROVAL FORMS

PrS30.act The Thesis Presentation Committee Form /P <<ET BtifLinkCID 1 >>BD4C 0 g /TTf -0T1]TJ5.64 0 12 90 6

Thesis/Dissertation Defense Outcome

Name	KSU ID
Email	Phone Number
Program	

Title

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.

Criterion	Exceeding expectations	Meeting expectations	Not meeting expectations

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.

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 and Program of Study

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.

Fall year 2

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

Spring year 2

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

Summer Year 2

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

Program of Study

Name KSU ID

Email _____ Phone Number

_____

Program _____

List of courses and credit hours required for the degree OR DegreeWorks printout or other program document can be attached. Include Course Designation and Number (ACCT 8100), Title, and Credit Hours.

Semester 1	Semester 2	Semester 3
Semester 4	Semester 5	Semester 6
Semester 7	Semester 8	Semester 9

AppendixA

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

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 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%)

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

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 di Tc -0.011 /TT1 Td ( )Tao( )Tj /TT2 1 Tf 28end pe a earer