



UNIVERSITY OF CENTRAL FLORIDA
COLLEGE OF SCIENCES



MS in Biology

(Thesis and Non-Thesis Tracks)

**The “Nearly Complete” Survival Guide
For Students and Faculty**



Department of Biology
University of Central Florida
Fall Semester, 2009
(Revised June 2, 2009)

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Welcome Letter from the Chair and Graduate Program Coordinator

Welcome to the Department of Biology. We are delighted that you have chosen the Master's Program as your academic home for the next stage of your education. The Master's program offers a broad range of training opportunities ranging from the sub-cellular to entire ecosystems. The standards in the Program are rigorous, however the reward is that you will emerge an expert in your chosen field and more fully prepared for employment in the field of your choice. As you begin your journey toward completion of the MS in Biology we look forward to working with you to ensure that your experiences as a student are both enriching and rewarding.

As a new graduate student you have become an important and valued member of our departmental community. Although much of your primary mentoring will come from your thesis advisor or the Graduate Coordinator, our department boasts a talented group of faculty with diverse research interests and a strong commitment to graduate education. They are more than willing to provide advice and help as needed.

Make a point of getting to know your fellow students. You can, and should be, a source of support and inspiration to each other through the good and the not so good times. Together you can create and sustain the culture needed to succeed.

Completion of the MS degree is not simply a matter of taking courses and conducting research. At various stages of your journey there will be programmatic requirements to fulfill, committees to be assembled, and forms to be filled out and passed on to mysterious administrators. It is important that you fully understand the requirements of the program and how to prepare for them. It is equally important that you develop an understanding of how the program is administered both at the Departmental and University level. Ultimately you are responsible for meeting Department and University requirements prior to graduation. This Handbook was designed to provide you with the basic information you need to understand and anticipate the requirements. Read it carefully and ask us about anything that is not clear to you.

Once again, congratulations on admission to the Masters Program and good luck with all of your endeavors.

Sincerely,

Dr. C. Ross Hinkle
Department Chair

Dr. Graham A.J. Worthy
Graduate Program Coordinator

Disclaimer: The on-line Graduate Catalog is the university's official record of graduate policies, and our Departmental Handbook must be consistent with university policy. In any case where the two documents appear to disagree, the on-line Graduate Catalog is the final authority.

I. MISSION STATEMENT:

The primary mission of the Master's Program in Biology is to provide a high quality training environment and prepare our graduates to critically contribute to the understanding and the proposal of solutions of society problems. We are committed to teach relevant skills for employment in the public and private sectors. The Biology Department is dedicated to excellence in the Program through rigorous teaching and active and diverse research programs funded from external contracts and grants. The Master's degree in Biology offers broad-based training in a variety of disciplines including Conservation Biology, Ecology, Evolution, Physiology, Genetics and Cell & Developmental Biology. As science moves into an era of cross-disciplinary studies, students are strongly encouraged to take relevant classes in other disciplines. Upon graduation, students are prepared to pursue a variety of careers including entrance into a Ph.D. program or professional school, conducting independent research in a University, Government or private setting, and teaching at the secondary and tertiary levels.

II. Who Can Help?

During your graduate studies, there will be times when you need advice or help on a whole variety of topics, from planning your research to chasing paperwork. Several layers of people are here to help, starting with your faculty advisor. In most cases, your faculty advisor will be the first person to contact for advice and/or to help you identify the person most able to help you. In many cases, especially regarding rules or administrative procedures, the next person to ask would be the Biology Graduate Coordinator or the Program Administrator. If those folks aren't available or can't help, the next person to talk to would be the Department Chair (or folks in that office). If that fails, it would be appropriate to contact people in the College of Sciences Dean's office, beginning with the Director of Graduate Studies and finally the folks at the College of Graduate Studies are willing to help. All of the above describes a rough chain-of-command, with the idea that the first people mentioned are most likely to be able to help you directly, and later people deal with additional layers of administrative responsibility.

It is your responsibility to keep informed of all rules, regulations, and procedures required for graduate studies. Graduate program regulations will not be waived or exceptions granted because students plead ignorance of the regulations or claim failure of the adviser to keep them informed. For detailed information on General Policies see the UCF Graduate Catalog (<http://graduate.ucf.edu/CurrentGradCatalog/content/Policies/GenPolicies.cfm>.)

Queries should initially be directed to your advisor or either the Graduate Program Coordinator or Graduate Program Administrator. Dr. Teresa Dorman and Ms. Sabrina Kalish in the Office of Graduate Services, College of Sciences can also provide advice.

Contact Information

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III. ADVISING AND MENTORING:

Non-thesis Track:

For students entering the non-thesis degree program, the Graduate Program Coordinator becomes your Academic Advisor and two other Advisory Committee members are selected from the Biology Graduate faculty primarily for their role in the Oral Comprehensive Exam. All Degree Requirements (see below) apply with the exceptions that non-thesis students write a Research Report in place of a thesis and non-thesis students take an Oral Comprehensive Examination in place of the Thesis Proposal Defense. This oral comprehensive examination is based on courses taken and your knowledge of general biology.

Thesis Track:

Prior to admission as a thesis-track student, you and your advisor agreed that you would work together on issues related to research, funding, professional guidance, and other areas of academic and professional interest. In other words, you have agreed to work together closely for several years. Your advisor did not consider this commitment lightly and nor should you. However, graduate students and initial advisors sometimes part ways: if you should decide it is best to do so, you should first talk about it with your advisor. This change can occur amicably, especially if done early (especially before the thesis proposal stage).

Let's assume you and your advisor develop an idea for your thesis as a result of regular conversations and your literature research. You will need to form an advisory committee (in your first semester) as you develop your research ideas. Talk with your advisor about potential faculty to serve on this committee. Having selected candidates, schedule a time to talk with each of them to explain what your thesis topic will be and to ask if they will serve on your advisory committee. Below are the rules about that committee, including its structure and responsibilities.

Masters Thesis Advisory Committee

Your Graduate Advisor or Chair (or at minimum a Co-Chair) must be a member of the Department of Biology in a tenure-earning position. For example, if your advisor is an Emeritus faculty member, you will also need a co-Chair currently active in the Department. A Graduate Advisory Committee must be formed before 9 credit hours of graduate work have been completed (i.e., by the end of the first or second semester, depending upon your course load), but it is advantageous for you to appoint this committee sooner so they can be involved in creating your Program of Study. The Advisory Committee is selected by mutual agreement between you, your Graduate Advisor, and respective faculty members. The Committee should include faculty who can contribute advice and give direction to your research project. You must take the initiative in contacting potential committee members. The Program of Study (POS), which is determined by the Graduate Advisor and the Advisory Committee and approved by the Graduate Program Coordinator and College, must be in place prior to the second term of full-time enrollment or by completion of the 9th hour in the program. See the section in the catalog pertaining to this policy at:

<http://www.graduate.ucf.edu/currentGradCatalog/content/Policies/GenPolicies.cfm#Program%20of%20Study>

Your Graduate Advisor serves as the Chair of your Advisory Committee. Your Advisory Committee must consist of at least the Chair plus two faculty members (including courtesy appointments), and at least two of the total membership must be from the Department of Biology. You may have more than three committee members, although it can be cumbersome to have too many (scheduling meetings, for example). Faculty members in departments outside Biology or qualified individuals from other institutions or from the community may be members of the Committee. Curriculum Vitae of potential off-campus committee members are reviewed by the Biology Graduate Committee for suitability, and your Advisory Committee members must be approved by the Graduate Program Coordinator (see the [Thesis Committee Approval Form](#)). Accepted individuals are given courtesy appointments for the duration of their service to the Department.

Once your Program of Study has been signed by all of your thesis committee members, it moves on for additional approvals by Graduate Program Coordinator and the College of Graduate Studies. The approved Program of Study is essentially a contract between you and the Department and can only be modified by mutual agreement, followed by the filing of revised forms. The program of study cannot be altered solely due to poor academic performance of the student.

IV. DEGREE REQUIREMENTS:

The MS in Biology offers two options: (1) a thesis option, which requires a minimum of 30 credit hours of courses, 15 of which must be at the 6000 level, and the production of a thesis; and (2) a non-thesis option, which requires a minimum of 40 credit hours of courses, 20 of which must be at the 6000 level. The MS program (either track) must include at least 21 credit hours taken at UCF. A maximum of three courses may be taken as independent study and/or directed research, for a total of no more than six credit hours. MS students have a maximum of five years to complete the program. All students must be enrolled full-time (9 hrs) at UCF for 2 consecutive academic semesters to fulfill their **residency requirement**. Undergraduate coursework is allowed in a master's program, but **only** if the Program of Study meets the following requirements.

- The Program of Study includes at least 30 credit hours of 5000-level courses or higher, which must be taken as part of an approved graduate Program of Study. No more than 6 hours of Directed Research/Independent Studies will be permitted.
- At least half of the Program of Study is at the 6000 level.
- Courses transferred into the Program of Study include graduate-level courses with a grade of "B-" or higher. No undergraduate courses may be transferred. For the definition of transfer courses, see the **Master's Program Policies** section in the Graduate Catalog.
- For the thesis option, at least 24 semester hours of course work earned is exclusive of thesis.
- The total hours required for the degree program is more than 30 hours. Master's degree programs that require only 30 hours can not have undergraduate courses in the Program of Study.
- The undergraduate course was taken while in the graduate degree program. Important! Undergraduate courses taken **prior** to admission into the master's degree that you are currently pursuing cannot apply toward the degree.

Example: A 36 hour Program of Study can consist of the following: 18 hours of 6000-level courses, 12 hours of 5000-level courses, and 6 hours of undergraduate courses taken while in the master's program. Eighteen hours of 6000-level and 12 hours of 5000-level equals 30. This meets the 30 hrs at 5000 or higher requirement and the 18 hours meets the 50% of POS at 6000 level requirement. However, these 6 hours of undergraduate courses could not apply if they were taken prior to admission to the master's program because they would be considered transfer courses and undergraduate courses can not transfer into a master's program.

Important! In order to understand the 4000 level policy and apply it, you must know the definition of transfer courses.

Master's transfer credits typically consist of hours completed at an accredited institution (including UCF) BEFORE a student is given graduate status in his/her master's program at UCF. Only graduate-level or higher courses may be accepted as transfer credits. Similarly, only courses with a grade of "B-" or higher may be transferred into a program of study. Except as noted in the bullets below, no more than a combined total of nine semester hours of credits may generally be transferred into a master's program of study. For policy details see: <http://www.graduate.ucf.edu/currentGradCatalog/content/Policies/Masters.cfm> > Course Requirements > Transfer Credit

- Graduate programs are permitted to accept up to nine hours of graduate course work taken at UCF while an undergraduate student was enrolled in an undergraduate program of study.
- Up to nine semester hours of graduate course work, but no undergraduate course work, may be transferred into a graduate program from other regionally accredited institutions.
- No more than nine semester hours of graduate credit may be transferred into the graduate program from UCF post-baccalaureate work (5000 level or higher of graduate courses taken while in non-degree status). Similarly, no more than nine semester hours of graduate course work may be transferred into the graduate program from courses taken as part of another graduate degree earned at UCF. For those students who may have completed graduate-level courses taken while in graduate status in another major at UCF where a degree was not earned, up to 9 hours of graduate course work may be credited toward a new degree program with the consent of the new program.

Students who wish to take graduate course work elsewhere while enrolled as a student at UCF must apply and be accepted as a "Traveling Scholar". Graduate credits earned as a Traveling Scholar are considered "resident" credits that are earned at UCF and are applicable to the program of study without being subject to the nine-hour limit.

The decision as to which courses transfer is made by the Departmental Graduate Committee upon a petition from you. The Program of Study must be approved by you, your Graduate Advisor, your Advisory Committee, the Graduate Program Coordinator, and the College of Graduate Studies.

All students must meet **at least annually** with their committees to assess progress toward graduation. **More frequent meetings are encouraged.** An annual report, assessing progress and activities for the academic year, must be on file with the Program Coordinator for each student by the **end of the summer semester**, using the “**Annual Progress Evaluation Form**”.

1. THESIS OPTION

A student selecting the thesis option is required to take the following courses:

Requirements for MS Thesis Option—30 Credit Hours Minimum

A student selecting the thesis option must include in their program of study:

- PCB 6095 Professional Development I (1 credit hour)
- PCB 6096 Professional Development II (1 credit hour)
- BSC 6XXX Biology Seminar (2 semesters of 1 credit hour each)
- STA 5175 Biometry (3 credit hours)
- BSC 6971 Thesis (minimum of 6 credit hours)

A minimum of 17 additional credit hours will be selected in conjunction with the faculty advisor and advisory committee members and approved by the Program Graduate Coordinator. If a student is deemed to have adequate training in statistics by their Advisory Committee the requirement for STA 5175 can either be waived or another more advanced course substituted.

Thesis (BSC 6971) Registration Requirement:

Students taking the Thesis Option, after completion of regular course work, are required to enroll in three credit hours of BSC 6971 every semester, including summer, for the duration of the MS program. Non-compliance with this rule may result in a graduate student being reverted to post-baccalaureate status.

THESIS PROPOSAL

The Department of Biology requires a thesis proposal be on file with the Graduate Program Administrator from all MS thesis option students by the **end of the second academic semester**, summer excluded. Failure to comply may result in the loss of teaching assistantship and any accompanying tuition waiver. Also, if the project involves research on vertebrates, an official Institutional Animal Care and Use Committee (IACUC) protocol must be approved prior to any research commencing and be on file with the Graduate Program Administrator. If the project involves human subjects, approval must be received from the Institutional Review Board (IRB).

2. NON-THESIS OPTION

A student selecting the non-thesis option will take the following program:

Group A (minimum of one course in three of the five areas) total 12-14 Credit Hours

See listings starting on page 11 to identify courses approved for each topic area.

1. Ecology
2. Evolutionary Biology
3. Genetics
4. Physiology
5. Cell and Developmental Biology

Group B (both courses are required)	<u>total 4 Credit Hours</u>
BSC 6XXX Biology Seminar (take twice)	2 hours
BSC 6909 Research Report	2 hours

Group C	<u>total 20-22 Credit hours</u>
Students can select from the restricted electives courses that are acceptable to the Graduate Program Coordinator. Students are strongly encouraged to include the following two courses:	
PCB 6095 Professional Development in Biology I	1 hour
PCB 6096 Professional Development in Biology II	1 hour

Minimum Semester Hours Required: 40

A. Degree Program of Study:

Students will finalize their program of study with their advisory committee by the completion of 9 credit hours in the program. The program of study will follow the SASS audit available to students through the MyUCF portal.

B. Examinations and Requirements:

1. MS Thesis Track

a) Thesis Proposal Defense

A thesis proposal defense is required of all students in the Thesis Track. The purpose of the proposal defense is to publicly present the planned research and its foundations as a seminar to an interested audience of one's peers and the student's Advisory Committee. The proposal should be distributed to Advisory Committee members two weeks in advance of the defense, and the proposal defense should be advertised (contact the Graduate Program Assistant two weeks in advance). Typically, public attendees will have an opportunity to ask questions and comment following the seminar, after which the committee meets in closed session with the student to further defend the proposal. The Advisory Committee must then vote to accept or reject the proposal. The Thesis Proposal Defense must be passed a minimum of one semester preceding the Oral Thesis Defense (i.e., the Proposal Defense and Thesis Defense cannot occur in the same semester).

b) Oral Thesis Defense

In addition to the Thesis Proposal Defense, an Oral Thesis Defense is required for students in the Thesis Track. The Thesis Proposal Defense must be passed a minimum of one semester preceding the Oral Thesis Defense. Students, faculty, staff, and other interested parties are strongly encouraged to attend thesis final defense sessions. Notices providing date, time, and location of such meetings must be distributed to all academic departments and this must be arranged through the Graduate Program Assistant at least 2 weeks prior to the defense date. The Oral Thesis Defense will consist of a 30-40 minute public presentation of the thesis, emphasizing results and conclusions followed by a period where visitors may ask questions. At the conclusion of the public question period, the committee Chair will ask the visitors to excuse themselves and the advisory committee will then examine the candidate privately and deliberate on the merits of the body of work. Thesis defenses will be approved by a majority vote of the

Thesis Advisory Committee. Thesis committee members who do not approve of the thesis may choose not to sign the thesis approval sheet. Further approval is required from the Dean or Dean designee and the UCF College of Graduate Studies before final acceptance of the thesis in fulfilling degree requirements.

The thesis can either be in the “traditional” format or in a format appropriate for publication. The Thesis and Dissertation Manual provides specific guidelines for preparing, formatting and submitting your thesis (<http://www.graduate.ucf.edu/formsnfiles/Openfile.cfm?ID=35>). It is the student's and their advisor's responsibility to make certain that the document is scientifically defensible and uses proper grammar and scientific style. The major role of the student's advisory committee is to offer guidance on study design and interpretation of results. It is not the committee's responsibility to edit careless writing. Committee members have the right to reject documents that fail to meet these guidelines.

A “polished” draft must be delivered to the advisory committee for review after the student and major advisor have agreed upon editorial changes; this should occur well before the anticipated date of the final defense. Ideally, committee members should be given at least 2 weeks to review the draft before the student attempts to schedule the final defense. The final defense is to be scheduled only after the advisory committee agrees that the thesis is ready for defense. Committee members should return the corrected thesis to the student two weeks after receipt and the student should check with committee members to ensure they have the time to review the document. If the student delivers the final draft to the committee one month prior to the proposed defense date, that would allow two weeks before the scheduled defense date for the student to make recommended changes. Students should schedule their defense at least two weeks ahead of time with the Graduate Program Administrator to ensure room scheduling, filing of appropriate paperwork, and advertising the defense time/date.

c. Submitting the Thesis.

The university requires all students submitting a thesis as part of their graduate degree requirements to first submit their electronic documents through Turnitin.com for advisement purposes and for review of originality. The thesis chair is responsible for scheduling this submission to Turnitin.com and for reviewing the results from Turnitin.com with the student's advisory committee. The advisory committee uses the results appropriately to assist the student in the preparation of their thesis or dissertation. Before the student may be approved for final submission to the university, the thesis chair must indicate completion of the Turnitin.com requirement by signing the Review for Original Work section on the Thesis and Dissertation Attachment form (see <http://www.graduatestudies.ucf.edu/formsnfiles/>).

Thesis Dissemination:

While UCF respects the wishes of students who would like to publish their work and/or apply for patents, it is essential for scholarly research conducted at a university to be available for dissemination. While several options are available for the release of an ETD, it is the goal of the university that all theses be available through the UCF Libraries catalog. Upon uploading the final ETD to the UCF Libraries ETD website, students, in some cases with their advisers, must choose one of the options for the availability of their ETD through UCF. Students with potential patent concerns are required to discuss the following options with their thesis adviser and

indicate the availability choice on the Thesis and Dissertation Attachment form (see www.graduatestudies.ucf.edu, Forms & Files).

- For those with no patent or copyright concerns:
 - Immediate worldwide dissemination with no restrictions.
- For those who have patent issues, dissemination options must be discussed and agreed to with your adviser. Choices are:
 - Pending dissemination of the entire work for six months for patent or other proprietary issues, with an additional six months extension available. Once the patent and proprietary issues are resolved, then immediate worldwide dissemination with no restrictions.
 - Pending dissemination of the entire work for six months for patent or other proprietary issues, with an additional six months extension available. Once the patent and proprietary issues are resolved, choosing this option allows the student to make the thesis available to the university community for a period of 1, 3 or 5 years, and then for it to be distributed via the Web beyond that time.
- For those who have copyright concerns, dissemination options are a student decision within the guidelines of individual departments that may have requirements for dissemination. If a department has no guidelines for dissemination, then students are free to choose one of the options below. In general, those in the sciences and engineering will choose one year while students in the arts and humanities may choose longer. Choosing this option allows the student to make the thesis available to the university community for a period of 1, 3 or 5 years, and then for it to be distributed via the Web beyond that time.

2. MS Non-thesis track

Oral Comprehensive Exam

An oral comprehensive examination is required of all students in the Non-thesis Track. If a student fails the comprehensive examination, a minimum of four weeks must pass before re-examination. The comprehensive exam may be taken a maximum of two times. Students preparing for the comprehensive exam should consult with each committee member about the general areas of Biology that will be stressed on the examination. Students should schedule their examination at least two weeks ahead of time with the Graduate Program Administrator to ensure room scheduling and filing of appropriate paperwork.

3) MS Thesis track Publications

Candidates for the Biology MS degree, thesis track, are expected to produce a body of work that could lead to at least one publication in a peer-reviewed journal and they are strongly encouraged to submit a manuscript prior to graduation or very soon thereafter.

C. Timeline for Completion of Degree and Course Requirements:

Sample Program of Study for the MS thesis track

(items in red should be completed in the semester indicated)

1st Year

Fall: PCB 6095 Prof. Dev. I (1) BSC 6XXX Biology Seminar (1) Elective course (3) Elective course (4) Form advisory committee	Spring: PCB 6096 Prof. Dev. II (1) BSC6XXX Biology Seminar (1) STA 5175 Biometry (3) * Elective courses (4) File Program of Study	Summer: BSC 6908 Independent Study (6) Thesis Proposal Defense
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2nd Year

Fall:** Elective courses (6) BSC 6908 Independent Study (3)	Spring:** BSC 6971 Thesis (3)	Summer:** BSC 6971 Thesis (3) Thesis Defense
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* Note: If a student is deemed to have adequate training in statistics for STA 5175 could be replaced with STA 5206. Alternatively, the requirement could be waived or a more advanced statistics course substituted.

** Note: If a student is on payroll and they have not passed their proposal defense they must be enrolled for 9 hours fall/spring or 6 hours in the summer. Students must be enrolled the semester they are intending to graduate. If a student is on a graduate teaching assistantship beyond four semesters, there must be a petition filed with the graduate committee.

Sample Program of Study for the MS non-thesis track. *

(items in red should be completed in the semester indicated)

1st Year

Fall: Group A Requirement (3-4) Group C Elective (3-4) BSC 6XXX Biology Seminar (1) PCB 6095 Prof Dev I (1) Group C Elective (optional) (3) Program of Study filed	Spring: Group A Requirement (3-4) Group C Elective (3-4) BSC6XXX Biology Seminar(1) PCB 6096 Prof Dev II (1) Group C Elective (optional) (3)	Summer: Group C Elective (3-4) (optional)
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2nd Year

Fall: Group A Requirement (3-4) Group C Elective (3-4) Group C Elective (3-4) Oral Comprehensive Exam	Spring: Group C Elective (3-4) Group C Elective (3-4) BSC 6909 Research Report (2) Research Report Filed	Summer:
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* Note: Non-thesis students are not eligible for tuition support through graduate employment unless given an exception from the Biology Graduate Committee. .

D. Program Coursework:

<http://www.graduate.ucf.edu/CurrentGradCatalog/content/Courses/>

Thesis Track:

Required Courses (13 hours):

PCB 6095 Professional Development in Biology I 1 (1, 0)

PR: Admission to the MS Biology or Certificate in Conservation Biology, or C.I. Methods in experimental design, research, and the ethics of animal research.

PCB 6096 Professional Development in Biology II 1(1, 0)

PR: PCB 6095. Preparation and presentation of research grants, scientific presentations, and scientific papers.

STA 5175 Biometry 3 (3, 0)

PR: STA 2023 or C.I. Design and analysis of experiments with emphasis on biological or ecological application; one-way and multi-way ANOVA; regression; ordination; classification.

Students are also required to take 2 semesters of **Biology Seminar (BSC 6XXX)** and a minimum of 6 credits of **Thesis (BSC 6971)**.

Additional Courses (17 credit hours):

Other courses can be drawn either from the Non-thesis Track Group A courses (below) or any other courses selected in consultation with your advisor and advisory committee and ultimately approved by the Graduate Coordinator.

Non-Thesis Track:

Group A - Required Courses (12 credit hours):

Students must take courses in three of the five subject areas. The following courses are acceptable to count in Group A.

Subject Area 1) Ecology:

PCB 5326C Ecosystems of Florida 5 (3, 2)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Ecosystems of Florida will be discussed to include geography, geology, climate, energetics, nutrient cycling, community structure and conservation.

PCB 5435C Marine Ecology of Florida 4 (2, 6)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Survey of experimental methods used in the study of marine communities in central and southern Florida, combining field manipulation and readings from primary literature.

PCB 5485 Models in Ecology 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. A survey of how simulation models are applied to ecological questions of both a theoretical and managerial nature.

PCB 6035C Wetland Ecology 4 (3, 3)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Advanced study of ecological structure, function, and diversity of wetlands. Lectures, discussions, and field-based labs, including management, laws, and restoration.

PCB 6046C Advanced Ecology 5 (3, 4)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Population and community ecology with emphasis on growth, regulation, species interactions, succession, and community classification.

PCB 6048C Restoration Ecology 4 (2, 4)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Survey of the general ecological principles that guide restoration ecology: the process of assisting the recovery of degraded, damaged or destroyed ecosystems.

PCB 6328C Landscape Ecology 4 (3, 2)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Influence of spatial heterogeneity on ecological processes. Emphasizes quantitative methods (e.g., GIS, remote sensing and modeling) to characterize landscape patterns and dynamics.

PCB 6466 Methods in Experimental Ecology 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. An introduction to methods of population ecology. Experimental design, statistics, experimental variables and treatments and measurements of organisms and the environment.

ZOO 6520 Behavioral Ecology 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Introduction to the field of Behavioral Ecology, which studies evolution of animal behavior in the wild.

Subject Area 2) Evolutionary Biology:

PCB 6675C Evolutionary Biology 4 (3, 2)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Review of modern concepts and theories in evolutionary biology with emphasis on readings in the primary literature.

PCB 6677 Molecular Evolution 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Provides an overview of molecular methods currently used to analyze diversity within and among species.

ZOO 5520 Behavioral Ecology 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Examination of current theory and research in behavioral ecology.

Subject Area 3) Genetics:

PCB 5665C Human Genetics 4(3, 2)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Human Genetics provides a theoretical framework for understanding the biology of the human species.

PCB 5935 Current Research in Population Genetics and Evolution 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Fundamentals of population genetics and application to evolutionary theory.

PCB 6556 Conservation Genetics 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Applications of genetic models to the understanding and conservation of animal and plant populations.

PCB 6585C Advanced Genetics. 4 (3, 2)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Recent advances in genetics, stressing molecular and developmental trends.

Subject Area 4) Physiology:

PCB 6365 Environmental Physiology 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. The effects of major environmental factors on the physiology of plants and animals.

PCB 6727 Comparative Animal Physiology 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Comparison of structural and functional adaptations of animal organ systems. Emphasis upon maximization of fitness under given environmental conditions.

Subject Area 5) Cell and Developmental Biology:

PCB 6107C Advanced Cell Biology 4 (3, 2)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Review of selected topics in cell biology with emphasis on current research in areas of membrane structure, protein targeting, cytoskeleton, signaling and cell cycle.

PCB 6256C Advanced Developmental Biology 4 (3, 2)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Lecture and literature review of emerging areas in plant and animal developmental biology.

Group B - Required Courses:

Non-thesis track students are required to take 2 semesters of **Biology Seminar (BSC 6XXX)** and 2 credit hours of **Research Report (BSC 6909)**.

Group C – Other Elective Courses:

Students should consult the Graduate Coordinator to select electives from the following lists (see below) or to identify other potential courses not listed here. The following two courses are strongly recommended.

PCB 6095 Professional Development in Biology I 1 (1, 0)

PR: Admission to the MS Biology or Certificate in Conservation Biology, or C.I. Methods in experimental design, research, and the ethics of animal research.

PCB 6096 Professional Development in Biology II 1(1, 0)

PR: PCB 6095. Preparation and presentation of research grants, scientific presentations, and scientific papers.

Other Potential Elective Courses for Either Non-thesis or Thesis Track Students:

Biology Department Offerings:

BOT 6623C Plant Ecology 4 (3, 3)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. The study of the abiotic and biotic processes that control the distribution of terrestrial flora at local, landscape, and global scales.

BSC 5408L Advanced Biology Laboratory Techniques 3 (0, 9)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. This course will emphasize those biological techniques and resources necessary for students about to begin thesis research. Individual and small group

instruction in current laboratory techniques, literature searches, and hands-on practice of techniques will be stressed. May not be repeated for credit.

BSC 5821 Biogeography 4 (4, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Study of geographic variation in nature, ranging from past to present and from genes to ecosystems.

BSC 6XXX Seminar in Biology 1 (1, 0)

PR: Admission to the MS Biology, or Certificate in Conservation Biology, or C.I. Discussions and presentations addressing current research in the field of biology.

BSC 6950 Biological Research Resources 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Research methodology including literature resources, problem conceptualization, research proposals, data collection, and analysis and presentation of findings.

BSC 6614 Advanced Topics in Systematics 1 (1, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Review current literature and computer programs in molecular systematics.

BSC 6950 Biological Research Resources 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Research methodology including literature resources, problem conceptualization, research proposals, data collection, and analysis and presentation of findings.

ENY 5006C Entomology 4 (2, 6)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Morphology, physiology, ontogeny, behavior, ecology and population biology of insects.

PAZ 5235 Zoo and Aquarium Biology Management 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Conservation, propagation and exhibition of wild animals in captivity.

PCB 5045 Conservation Biology 4 (3, 2)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Scientific basis of conservation; conservation of ecosystems, populations, exploited species, and endangered species.

PCB 6040 Methods of Data Collection and Analysis in Behavioral Ecology 1 (1, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Discussion of methodology and data analysis in behavioral ecology.

PCB 6047 Advances in Plant Ecological Research 1(1, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Current methodological and conceptual developments in plant ecological research. Examination of newly published and on-going research through presentations and group discussions. Graded S/U. May be used in the degree program a maximum of 2 times.

PCB 6108 Concepts in Plant Cell Biology 4 (4, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Plant cell biology, including cytoskeletal dynamics, cell signaling, cell cycle regulation, protein targeting and organelle structure and function

PCB 6415 Advanced Topics in Behavioral Ecology 1 (1, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Discussion of the most recent literature (research) in behavioral ecology. Graded S/U. May be repeated for credit.

PCB 6466 Methods in Experimental Ecology 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. An introduction to methods of population ecology. Experimental design, statistics, experimental variables and treatments and measurements of organisms and the environment

PCB 6480C Quantitative Conservation Biology 4 (3, 2)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Current methods of data analysis and modeling to evaluate biological population dynamics. May be used in the degree program a maximum of 2 times.

PCB 6655 Advanced Invertebrate Genetics 1 (0, 2)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Literature based discussion of recent developments in classical and molecular genetics of invertebrates. May be repeated for credit two times.

PCB 6677 Molecular Evolution 3 (3, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Provides an overview of molecular methods currently used to analyze diversity within and among species.

PCB 6933 Contemporary Studies in Biology 2 (2, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Analysis of current publications and developments in theory and concepts of Biological sciences. May be repeated for credit as content is variable.

PCB 6934 Molecular Mechanisms of Fertilization: Journal Club 1 (1, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Current topics in fertilization research includes analysis and discussion of primary literature in both vertebrate and invertebrate systems. Graded S/U.

PCB 6936 Current Research in Marine Vertebrate Ecology 1 (1, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Current research in the area of marine vertebrate ecology: readings, presentations and discussions. Graded S/U. May be used in the degree program a maximum of 5 times.

PCB 6939 Topics in Genomics 1 (1, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Review current literature on how genomics applies to evolutionary biology.

PCB 6959 Cell Biology Journal Club 1 (1, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Reading and critical analysis of current research in cell biology with emphasis on cell-cell communication, cell-ecm interaction and protein targeting.

ZOO 5456C Ichthyology 4 (2, 6)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Introduction to the biology of the fishes, their classification, evolution, and life histories.

ZOO 5463C Herpetology 4 (2, 6)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Introduction to the biology of the amphibians and reptiles, their classification, evolution, and life histories.

ZOO 5475C Field Ornithology 3 (0, 6)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Introduction to the identification, taxonomy, natural history, and biology of birds, with emphasis on survey techniques and systematics.

ZOO 5486 Mammalogy 4 (4, 0)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Introduction to the biology of mammals, their classification, evolution, and life histories.

ZOO 5881C Fisheries Management 4 (3, 4)

PR: Admission to the MS Biology, Ph.D. in Conservation Biology, or Certificate in Conservation Biology, or C.I. Fisheries management of freshwater environments to include identification, sampling methods, farming and hatchery operations, propagation and population estimates.

Non-Biology Department Courses:

BUL 6444 Law and Ethics 1.5 (1.5, 0)

PR: CBA Masters Program of Study Foundation Core. Legal and ethical issues inherent in business decision making.

CAP 5512 Evolutionary Computation 3 (3, 0)

PR: Graduate standing or C.I. This course covers the field of evolutionary computation, focusing on the theory and application of genetic algorithms.

CEG 5700 Geo-Environmental Engineering 3 (3, 0)

PR: CEG 4101C. Geotechnical applications to environmental problems, groundwater flow, soil contamination and groundwater contaminate transport, geosynthetics and stability of landfill design, control of contaminated sites.

CGN 5320C Geographic Information Systems 3 (2, 2)

Programming theory and application of Geographic Information Systems to Civil Engineering projects.

CHS 6613 Current Topics in Environmental Chemistry 3 (3, 0)

PR: CHM 2045, CHM 2046, or the equivalent of a B.S. in biological, molecular, chemical or engineering sciences, or C.I. Advanced principles of environmental chemistry, environmental law, current remediation technologies and industrial practices relating to the environment.

EEL 5432 Satellite Remote Sensing 3 (3, 0)

PR: EEL 3470 or PHY 4324. Fundamentals of satellite remote sensing, orbits and geometry, radiative transfer theory, microwave and infrared sensing techniques, ocean, ice and atmosphere geophysical measurements.

EEL 5820 Image Processing 3 (3, 0)

PR: MAP 2302, EGN 3420, EEL 4750 or C.I. Two-dimensional signal processing techniques; pictorial image representation; spatial filtering; image enhancement and encoding; segmentation and feature extraction; introduction to image understanding techniques.

INR 6405 Environmental International Law 3 (3, 0)

PR: graduate standing. Examination of the international treaty regime governing the global environment, including biodiversity, the atmosphere, the ocean, and hazardous waste.

MMC 6612 Communication and Government 3 (3, 0)

A study of the relationship between the media and government.

PAD 5041 Ethics and Values in Public Administration 3 (3, 0)

Examination of ethics in the public sector. Public concerns, past patterns, and individual/social aspects of ethical behavior are explored.

PAD 5338 Land Use and Planning Law 3 (3, 0)

Review of national and local aspects of the legal underpinnings of urban planning aspects such as zoning, growth management, and environmental regulation.

PAD 6353 Environmental Program Management Research 3 (3, 0)

Research of environmental programs, problems, issues, and policies to prepare persons working for or entering government service for environmental program staff or management responsibilities.

PHM 5035 Environmental Philosophy 3 (3, 0)

PR: PHI 3640, PHI 2630 or C.I. This course will provide an in-depth examination of the major contemporary positions in environmental philosophy, including deep ecology, ecofeminism, and social ecology.

PUP 6201 Urban Environmental Policy 3 (3, 0)

PR: Graduate standing or C.I. Covers the relationship between public policy, ecology, and the urban political landscape by tracing the trajectory of its development and prospects for sustainable cities.

PUP 6208 Environmental Politics 3 (3, 0)

PR: Graduate or post-baccalaureate status. Examines the political ideas and practices which have shaped environmental politics and practices in the U.S.

STA 5176 Introduction to Biostatistics 3 (3, 0)

PR: STA 4163 or STA 4173, graduate status or senior standing, or C.I. Fixed-effects model, random-effects model, repeated measures design, logistic regression, survival analysis, Kaplan-Meier estimates, proportional hazards model.

STA 5206 Statistical Analysis 3 (3, 0)

PR: STA 2023; not open to students who have completed STA 4164. Graduate status or senior standing or C.I. Data analysis; statistical models; estimation; tests or hypotheses; analysis of variance, covariance, and multiple comparisons; regression and nonparametric methods.

E. Graduate Research:

(i) Human Subjects

If the student chooses to conduct research that involves human subjects (i.e. surveys, interviews, etc.), he or she must gain Institutional Review Board (IRB) approval prior to beginning the study. For access to the IRB submission form and sample consent forms, please visit the Office of Research website: <http://www.research.ucf.edu/> > Compliance > UCF IRB Webpage > UCF-IRB Principal Investigator's Manual. An approved copy of this protocol must be on file with the Program Graduate Coordinator.

(ii) Animal Subjects

If the student chooses to conduct research that involves animal subjects, he or she must gain Institutional Animal Care and Use Committee (IACUC) approval prior to beginning the study.

For access to the IACUC submission forms, please visit the Office or Research website: <http://www.research.ucf.edu/> > Compliance > UCF IACUC Webpage > Animal Use Approval Form. Note there are different forms for captive animals and wildlife studies. An approved copy of this protocol must be on file with the Graduate Program Administrator.

(iii) Ethics in Research

Researchers in every discipline have a responsibility for ethical awareness as the status of the profession rests with each individual researcher. The ethical collection and use of information includes, but is by no means limited to, the following: confidentiality, accuracy, relevance, self-responsibility, honesty, and awareness of conflict of interest. The University of Arizona's Code of Research Ethics provides our students with guidelines for responsible practice in research. This code of ethics can be found here: <http://w3fp.arizona.edu/senate/ethicode.htm> . **Students guilty of academic dishonesty or improper ethical behavior will be dismissed from the program.**

(iv) Patent and Invention Policy

UCF has three fundamental responsibilities with regard to graduate student research. They are to (1) support an academic environment that stimulates the spirit of inquiry, (2) develop the intellectual property stemming from research, and to (3) disseminate the intellectual property to the general public. UCF owns the intellectual property developed using university resources. The graduate student, as inventor, will, according to this policy, share in the proceeds of the invention. The full policy is available online from the Graduate Catalog: <http://www.graduate.ucf.edu/CurrentGradCatalog/> > Policies > General Policies > Patent & Invention Policy

(v) Thesis Manual

The Thesis Manual provides the ultimate guidelines for preparing, formatting and submitting your thesis (<http://www.graduate.ucf.edu/formsnfiles/Openfile.cfm?ID=35>).

(vi) Laboratory Safety

The Department of Environmental Health and Safety is in charge of holding classes and workshops detailing proper laboratory procedures at the university. All graduate teaching assistants and research assistants are required to take their course on laboratory and chemical safety. Registration for the courses is done online (<http://www.ehs.ucf.edu>). All students are expected to exhibit behavior consummate to a professional setting in all campus laboratories.

V. GRADUATION

Students who are in their last term of attendance must fill out an **intent to graduate** form and submit the form with signatures by the last day of add/drop of the term. Forms must be signed by the student and the chair of their committee. After the form has been signed, it should be returned to the Program Administrator to verify that degree requirements have been met on the SASS audit. Course substitutions will be made at that time if they have not been completed before filing of the intent to graduate form. This form can be found online at:

<http://www.graduatestudies.ucf.edu/formsnfiles/> > Graduate Student Intent to Graduate Form.

Coordination of examinations will be through the Graduate Program Administrator to ensure that a room will be available on the appropriate day. Students are advised to schedule all examinations at least two weeks in advance to assure that all paperwork has been properly filed in a timely manner.

Students who submit an “Intent to Graduate” form, but are missing degree requirements (with no indication of completion in process) will be either approved for graduation on a pending status or denied. Students must be registered in the term of graduation. It is the student’s responsibility to ensure that the requirements of their degree have been met; therefore, students are encouraged to review their SASS audit regularly. The audit can be found online at <https://my.ucf.edu> > Polaris Student Self Service > View Degree Audit Report

VI. GENERAL POLICIES

A. Student Rights and Responsibilities:

The Golden Rule is provided to answer any questions a student may have about the university rules and regulations, as well as outlines a student’s rights and responsibilities. The Golden Rule can be found online at <http://www.goldenrule.sdes.ucf.edu/>. In addition, graduate students can find additional information about their responsibilities in the Graduate Catalog, found online at <http://www.graduate.ucf.edu/CurrentGradCatalog/> in the section marked Policies > General Policies.

For more information about college and university graduate policies, see also:

Department of Biology Website – <http://www.cos.ucf.edu/biology>

College of Sciences Graduate Website – <http://www.cos.ucf.edu/cosgraduate/index.htm>

College of Graduate Studies Website – <http://www.graduate.ucf.edu/currentGradCatalog/>

B. Satisfactory Academic Performance:

Satisfactory performance involves maintaining the standards of academic progress and professional integrity expected in a particular discipline or program. Failure to maintain these standards may result in termination of the student from the program.

The university computes an overall graduate GPA based upon all graduate courses taken by the student at UCF. All graduate courses taken at UCF and the corresponding overall GPA will be shown for informational purposes on the student's academic audit. In addition, a graduate status GPA will be calculated on the courses taken as part of the program of study for the degree program in which the student is enrolled. This graduate status GPA will be established and calculated by an audit of the student's progress in the program. In most instances, the overall graduate GPA and the graduate status GPA will be equivalent. However, for students who change programs or move from a completed master's program into a doctoral program, the two computations will be somewhat different. The university requires that students must maintain a graduate status GPA of at least 3.0 or higher in order to maintain graduate student status, receive

financial assistance, and qualify for graduation. The graduate status GPA is the cumulative GPA of graduate courses taken since admission to the degree program. This graduation requirement for a minimum 3.0 GPA in all graduate courses completed since admission into the graduate program cannot be waived.

If a student's graduate status GPA drops below 3.0, the student will be automatically changed to academic probationary status by the Division of Graduate Studies for a maximum of nine semester hours. Students will receive a notice of probation at the beginning of the probation and this notice of probation will be imprinted on the student's advising transcript. The graduate program will also be notified at the time of probation and given the opportunity to formally submit an "appeal for retention" during the 9-hour probationary period. This allows the program, in consultation with the Appeals Subcommittee of the Graduate Council, to formulate an acceptable Conditional Retention Plan before dismissal should the student fail in their probationary remediation. Unsatisfactory performance may also be indicated by a "U" grade in graduate course work. Under such circumstances the program may elect to place the student on academic probation and to provide a plan to rectify the situation.

If the student has not attained a graduate status GPA of 3.0 at the end of the nine semester hours, she/he will be dismissed from the graduate program if the program has not formulated an approved Conditional Retention Plan. Programs have one semester following the last semester of probation in which to submit an "appeal for retention." Appeals for retention submitted during the summer may be delayed until the first Appeals Subcommittee meeting in the fall semester.

International students placed on probationary status will be sent to the International Services Center for advisement regarding the immigration status implications of this action.

Graduate students whose graduate GPA falls below 2.0 will be dismissed from the degree program immediately and will not be able to enroll in graduate courses unless they have been admitted to another graduate program. Exceeding 6 hours of C or lower grades will also result in dismissal from the program.

For more details on GPA requirements, refer to the section on Graduate GPA in the most current catalog at <http://www.graduate.ucf.edu/currentGradCatalog/content/Policies/GenPolicies.cfm>
>Academic Progress and Performance > Graduate GPA.

C. Satisfactory Academic Progress:

MS students must be enrolled in full-time status, for at least two consecutive semesters following admission into the degree program. For completion of the degree, courses taken more than seven years prior to graduation cannot be applied toward a graduate program of study. In order to allow courses taken more than seven years prior to graduation to be applied toward the program of study, the student must file a petition. Petitioning the 7year rule is not an automatic approval.

D. Full Time and Continuous Enrollment:

A full-time degree-seeking graduate student must take at least 9 credit hours in the fall and spring semesters. A half-time load is defined as enrolled in at least 4.5 credit hours in fall and spring terms. During the summer term, full-time is 6 credit hours and half-time is 3 credit hours. There is an exception to this policy: for MS students pursuing a thesis option, full-time enrollment is defined as 3 hours per semester (including summers, without skipping a semester) of thesis (PCB 6971), after completion of all course work and until graduation. Students who wish to enroll in part-time hours should consult their adviser. Graduate students receiving assistantships, tuition support, and fellowships must be enrolled full-time as degree-seeking students who maintain good academic progress. Failure to enroll in three consecutive semesters (spring, summer, and fall) is considered non-continuous enrollment.

Unless they are receiving federal loans, students are considered full-time for fellowship, employment and tuition waiver purposes if they enroll into the hours required for program completion and file the Intent to Graduate form. A student may be held to other enrollment requirements, as defined by financial awards, veteran status, employment, or other outside agencies. Also be aware that there is a one time exception for students that have met all requirements and need only to file, defend, or take a comp exam. In these cases enrollment of one hour of IDS 6999 is allowed.

Enrolled students who are classified as non-Florida residents for tuition purposes but who believe they may qualify for in-state tuition may submit a Residency Reclassification Form to the College of Graduate Studies. The reclassification form must be accompanied by all documents that support the student's Florida residency claim. Residency reclassification requests are subject to Florida Statute 1009.21 (formerly 240.1201), Florida State Board of Education Administrative Code 6A-10.44, and State Board of Education rule 6C-7.005. More information is available at <http://www.students.graduate.ucf.edu/pagegen/index.cfm?PageID=81>.

E. Transfer Coursework:

All transfer coursework must be approved by the program's Graduate Coordinator and requests must be filed within 1 year of entry into the program.

F. Incomplete Grades:

Students who received an incomplete (I) in a course are encouraged to resolve this incomplete as soon as possible; however, it must be resolved within one calendar year, or prior to graduation certification, whichever comes first. Incompletes left unresolved will be changed to F (or a U in thesis hours or research report) if not resolved in the allowed time period. Incomplete grades cannot be used towards completion of the program of study.

Incomplete grades are not counted as satisfactorily completed courses and are not recognized as such by Graduate Studies for fellowship purposes or by Financial Aid. Students on financial assistance must check with the Financial Aid office to see if the receipt of an incomplete grade will affect their financial award.

G. Withdrawal Policy:

If a student decides to withdraw from a course, they must do so by the semester's withdrawal deadline. In doing so, the student is still liable for tuition and fees for the course.

H. Petitions and Grievances:

It is the student's responsibility to be informed of graduate policies and procedures; however, should a student wish to request an exception to a university or program policy, he or she must file a petition that outlines the nature of their request. Normally, petitions are presented to the graduate program's coordinator and/or committee, the college's Director of Graduate Services and the Associate Dean for Graduate Studies, and the Graduate Council for consideration.

Should a student wish to file a grievance, he or she should first review UCF's Golden Rule (<http://www.goldenrule.sdes.ucf.edu/>) and the Academic Grievance Procedures found at <http://www.students.graduate.ucf.edu/CurrentGradCatalog/content/Policies/GenPolicies.cfm>.

VII. PROFESSIONAL DEVELOPMENT

A. Travel Support:

The Division of Graduate Studies offers a Graduate Travel Award that provides funding for MS students to deliver a research paper or comparable creative activity at a professional meeting. Students must be the primary author and presenter.

www.graduate.ucf.edu > Current Students > Financial Matters

Graduate Students Travel Funding is available to pay transportation expenses for graduate students who are delivering a research paper or comparable creative activity at a professional meeting. Contact the Student Government Association at 407/823-5648 or <http://www.sga.ucf.edu/home> for more information.

B. Instructor Training and Development:

The Faculty Center for Teaching & Learning (FCTL) promotes excellence in all levels of teaching at the University of Central Florida. To that end, they offer several programs for the professional development of Graduate Teaching Assistants at UCF.

(i) GTA Grader and Assistant Training (mandatory for employment as a GTA)

This training provides information and resources for students who will be instructors in an on-line format. The course covers a variety of topics, including course development, learning theories, lecturing, and academic freedom. Biology Graduate students should also register for the more advanced "GTA Associate" training which is done in a seminar format.

(ii) GTA Teaching Certificate

This certificate program (12-weeks for domestic students, 16-weeks for international students) consists of group and individualized instruction by Faculty Center staff and experienced UCF professors. Textbooks and materials are provided, and a stipend is offered to current UCF students who complete the certificate. International students are provided the same training as

well as information regarding language immersion and tricks and cultural awareness as a way of knowing what to expect from American students.

For more information: <http://www.fctl.ucf.edu/> > Events > GTA Programs or call 407/823-3544.

C. Career Services and Experiential Learning: <http://www.crc.ucf.edu/home/>

Graduate career development issues are unique and include evaluating academic and nonacademic career choices, discussing graduate school effect on career choices, as well as learning, evaluating, and refining networking and interviewing skills. Whatever your needs, the offices of Career Services and Experiential Learning offer services and resources to aid in the career exploration and job search of MS students in every academic discipline.

D. Graduate Student Association: <http://www.gsa.graduate.ucf.edu/>

Each semester, GSA offers seminars geared toward academic and professional development. And sponsors the Graduate Research Forum (Sponsored by the Division of Graduate Studies), the Research Forum is an opportunity for students to showcase their research and creative projects and to receive valuable feedback from faculty judges. Awards for best poster and best oral presentation in each category will be given and all participants will receive recognition.

E. Biology Graduate Student Association: <http://biology.ucf.edu/~bgsa/>

The UCF Biology Graduate Student Association (BGSA) was established in 1997 to provide opportunities for UCF biology students to participate in extracurricular activities in biology.

- Regular seminars by visiting professors
- UCF faculty and grad student presentation sessions
- Active service organization, participating in both roadside and beach cleanup activities
- Social events (canoeing, nature walks, volunteer activities, social gatherings)
- Journal Club discussions of scientific publications in areas studied in the department

F. Graduate Excellence Awards

Each year, students can submit a portfolio for nomination of College and University level awards of excellence. These are intended to showcase student excellence in academic achievement, teaching, research, leadership, and community service. These awards include the following:

(i) Award for Excellence by a Graduate Teaching Assistant

For students who provide teaching support and assistance under the direction of a lead teacher. This award focuses on the extent and quality of the assistance provided by the student to the lead instructor and the students in the class. (Not intended for students who are instructor of record)

(ii) Award for Excellence in Graduate Student Teaching

For students who serve as instructors of record and have independent classroom

responsibilities. The focus of this award is on the quality of the student's teaching and the academic contributions of those activities.

(iii) Award for the Outstanding Thesis

To recognize MS students for excellence in the thesis. The focus of this award is on the quality and contribution of the student's thesis. Excellence of the thesis may be demonstrated by evidences such as, but not limited to: publications in refereed journals, awards and recognitions from professional organizations, and praise from faculty members and other colleagues in the field.

For more information about these awards, please see the Division of Graduate Studies administrative website: www.graduatestudies.ucf.edu > Graduate Awards.

G. Sigma Xi: <http://www.sigmaxi.org/>

Sigma Xi sponsors/co-sponsors distinguished researchers and fund prizes for outstanding presentations to graduate students, undergraduates, and high school students. Membership in Sigma Xi is by invitation. Those who have shown potential as researchers are invited to join as associate members. Full membership is conferred upon those who have demonstrated noteworthy achievements in research. Each year the Society initiates nearly 5,000 new members. Over the course of the Society's distinguished history, nearly 200 members have won the Nobel Prize and many more have earned election to the National Academies of Sciences and Engineering.

While many Sigma Xi programs are administered directly through its chapters, some long-standing programs of the Society continue to be central to its overall mission. These include *American Scientist* magazine, the Grants-in-Aid of Research Program, a number of prestigious annual prizes and awards and the college of Distinguished Lecturers. The Sigma Xi Annual Meeting and Student Research Conference has become a dynamic gathering for hundreds of leading researchers and students, featuring workshops, research presentations, panel discussions and networking opportunities over several days. The growing portfolio of Sigma Xi programs also includes newer offerings that capitalize on the Society's unique strengths and characteristics, such as the Media Resource Service and the Sigma Xi Postdoc Survey.

UCF Faculty Contact: Dr. Linda J. Walters: ljwalter@pegasus.cc.ucf.edu

VIII. FINANCIAL SUPPORT

A. Hiring on Graduate Lines:

(i) General Information.

Contingent on available departmental funding and tuition waivers, in-program MS students can expect up to 4 semesters of academic year GTA support with a tuition waiver. Non-thesis track students are not guaranteed GTA support. This support will be maintained as long as adequate

progress is made toward completion of their degree (including timely formation of advisory committee, filing of POS, and defense of proposal) and performance assessments of teaching remain positive. Extensions to these time limits can be made, by majority vote of the Graduate Committee, if the student's graduate advisor and advisory committee feel that adequate progress is being made to graduation. Requests for such extensions for the subsequent academic year may be requested by petition, signed by a majority of the Advisory Committee members, and submitted to the Graduate Coordinator by **January 30**.

Graduate Research Assistant (GRA) positions, and their associated tuition waivers, are funded off a faculty member's grant account. Students must be enrolled full time in order to receive a tuition waiver (9 hours fall/spring, 6 hours in the summer; 3 hours after the student passes candidacy).

The current payroll schedule may be found both on the BGSa website and also the graduate section of the biology webpage. Time sheets are due the Wednesday prior the Friday the student will be paid. Failure to turn timesheets in on the correct day will delay payment to the student.

Students must enroll as soon as possible to assure that tuition waivers and contracts are processed in a timely manner. Failure to be registered full time will result in the tuition waiver being revoked from the student (9 hours fall and spring, 6 summer; after candidacy 3 hours each semester). Emails will be sent informing students when contracts need to be signed to ensure correct processing. If the student does not sign and turn in their contract by the specified deadline, payment will likely be delayed. Contracts must be approved at three levels before the student will be granted payment.

(ii) Assistantships and Tuition Waivers.

For complete information about university assistantship and tuition waivers, please see the UCF Graduate Catalogue: <http://www.graduate.ucf.edu/currentGradCatalog/> > Financial Information

Students are offered GTA and GRA positions through their academic advisor. Students in their first and second years are typically offered GTA positions then offered GRA positions to complete their thesis work if additional years are required. Students who are offered Presidential, Provost and Trustees Fellowship recipients are eligible to receive GTA or GRA awards to supplement their funding. While all students will be considered for these awards when they apply to the MS program, applicant evaluations are generally made in January.

To be employed and to maintain employment in a graduate position, the student must be:

- In good academic standing
- Enrolled full time

To be awarded and continue receipt of a tuition waiver, the student must be:

- In good academic standing
- Enrolled full time
- Employed on a graduate line (GTA, GRA), receiving a University fellowship, or (if employed off-campus) employed where payroll is processed through Graduate Studies

(iii) GTA Training Requirements.

If the student is hired in the position of Graduate Teaching Associate (position code 9183), Assistant (position code 9184), or Grader (position code 9187), there are training requirements that must be met in order for the contract to be processed. Associates and Assistants must complete a two-day training and an online legal module. Associates must also have completed at least 18 hours of graduate courses in the discipline they will be teaching. Students who are employed as Graders are required to complete the online legal module. These services are offered by the Faculty Center for Teaching and Learning (FCTL) and more information can be found at the following website: <http://www.fctl.ucf.edu> > Events > GTA Programs

Students who are non-native speakers of English, and do not have a degree from a U.S. institution, must pass the SPEAK test with a score of 55 or better before they will be permitted to teach as Graduate Teaching Associates or Graduate Teaching Assistants. The SPEAK test is not required for students who will be appointed as a Graduate Teaching Grader. This test (also known as the Oral Proficiency Exam) is administered during the GTA orientation by the Center for Multicultural and Multilingual Services (CMMS).

(iv) GTA Performance Appraisal.

At the completion of each semester in which a student is employed as a GTA, the student's performance will be evaluated by the faculty course instructor. These assessments will be used to review strengths and weaknesses in the student's performance in preparation for future employment.

(v) International Students.

Several types of employment are available to international students, including on-campus employment. For more information about the types of employment available to international students, and the requirements and restrictions based on visa-type, please see the International Services Center's website: <http://www.intl.ucf.edu/> > Current Students > Employment

(vi) Graduate Teaching Assistant Lines.

New Graduate Teaching Assistants and Graduate Teaching Associates are required to attend the UCF Graduate Teaching Workshop held yearly, before teaching classes at the university. These workshops are presented by the [Faculty Center For Teaching and Learning](#) (FCTL). Graduate students with access to student records must maintain the confidentiality of all student records and information. Any violation of this will result in immediate dismissal from the program.

a) GRADUATE TEACHING ASSISTANT - 9184 (Teaching Assistant)

Graduate Teaching Assistant (GTA): Graduate Teaching Assistants are **students who have completed less than 18 hours of course work in the discipline or who are assigned to assist a faculty member with teaching-related duties**. In order to qualify for employment in this job code, students **must have completed the Graduate Teaching Workshop** given by the Faculty Center for Teaching and Learning (FCTL). In addition, International students may only be hired as a Graduate Teaching Assistant after obtaining a score of at least **50 on the [SPEAK](#)** exam. Because of their level, these students may be paid at a lower rate than Graduate Teaching Associates; however, this is not a

requirement of the job code. These students are typically paid from E&G funds and hired on a salaried, contractual basis.

Graduate students employed as **Graduate Teaching Assistants (9184) must not be assigned as an instructor of record or to teach independently.** Students employed as an instructor of record must have at least 18 hours of course work in the major and must be hired in the Graduate Teaching Associate (9183) job code. They should receive a letter, with a copy of their official file, signed by the department chair indicating their eligibility to teach based on this rule.

b) GRADUATE TEACHING ASSISTANT - 9187 (Grader)

Graduate Teaching Assistant - Graders are masters or doctoral students who are assigned to assist a faculty member with grading and other teaching-related duties **that require no contact with students.** These students may not have instructional responsibilities. In order to qualify for employment in this job code, students **must have completed the Graduate Teaching Workshop** given by the Faculty Center for Teaching and Learning (FCTL). International students may be assigned to this job code **without taking the SPEAK test.** Because of their level, these students may be paid at a lower rate than Graduate Teaching Associates; however, this is not a requirement of the job code. These students are typically paid from E&G funds and hired on a salaried contractual basis.

(vii) Graduate Research Assistant Lines.

a) GRADUATE RESEARCH ASSISTANT - 9182

Graduate Research Assistant (GRA): Graduate Research Assistants are **MS students who are assigned research duties.** These students are typically paid from C&G funds and hired on a salaried, contractual basis.

(viii) Graduate Assistant Lines (no tuition waiver).

a) GRADUATE ASSISTANT - 9185 (no contract)

Students hired on this job code may be assigned general duties related to research, clerical, or other employment activities. These students are paid on an hourly basis. These students may be paid from E&G or C&G funds.

b) GRADUATE ASSISTANT - 9186 (contract)

Students hired on this job code may be assigned general duties related to research, clerical, or other typical employment activities. These students are paid on a salaried, contractual basis. These students may be paid from C&G or E&G funds.

B. Research Support/Fellowships:

(i) UCF Biology Graduate Student Research Enhancement Awards.

The Biology Graduate Committee will consider proposals to fund graduate student research following the guidelines listed below. The maximum Graduate Student Research Enhancement Award per student will be \$1,000. Absolute number of awards offered in a given year will vary as a function of Departmental budgetary constraints. Only one award per student is permitted and monies must be spent by the end of the spring semester. At the time of application, the candidate

must have passed their Proposal Defense exam, and their proposal and program of study must be on file with the Graduate Program Administrator. Also, if the project involves research on vertebrates, an official IACUC protocol must already be submitted to or approved by the UCF IACUC committee (see below for details). By submitting a proposal, you agree to include the following statement in all theses, publications, reports and presentations supported by a GSREA: “This project was supported, in part, by a Graduate Research Enhancement Award from the UCF Department of Biology.”

Funds will be granted to support research expenses only, including supplies and travel in direct support of research efforts. Travel to scientific meetings to present research results are not eligible for GREA funds. The purchase of equipment, whose total cost exceeds \$1,000, is possible if the source of funds to cover the remaining costs is stated. If it will come from a funded project, the budget page of the previously awarded proposal must be submitted. Please do not list yourself as a source of funds for the remaining equipment costs. All unexpended supplies and equipment purchased with UCF Biology GREA funds will become the property of the Department of Biology when the student completes his or her research.

Grants to supplement travel costs to meetings are also occasionally available from UCF Graduate Studies and the Student Government Association.

(ii) U.S. Environmental Protection Agency, National Center for Environmental Research
EPA Science To Achieve Results (STAR) Fellowships For Graduate Environmental Study
<http://es.epa.gov/ncer/rfa/>

Summary of program requirements

Synopsis of Program: The U.S. Environmental Protection Agency (EPA), as part of its Science to Achieve Results (STAR) program, is offering Graduate Fellowships for masters and doctoral level students in environmental fields of study. The deadline for receipt of pre-applications is generally in mid October. Master's level students may receive support for a maximum of two years. Doctoral students may be supported for a maximum of three years, usable over a period of four years. The fellowship program provides up to \$37,000 per year of support per fellowship.

Award Information:

Anticipated Type of Award: Fellowship

Estimated Number of Awards: Approximately 100 awards

Anticipated Funding Amount: Approximately \$9.8 million for all awards

Potential Funding per Fellowship: \$37,000 per year per fellowship. Master's level students may receive support for a maximum of two years. Doctoral students may be supported for a maximum of three years, usable over a period of four years.

Eligibility Information: Applicants must attend a fully accredited U.S. college or university (located in the U.S. or its territories). Applicants must also be citizens of the United States or its territories or possessions, or be lawfully admitted to the United States for permanent residence. Resident aliens must include their green card number in their pre-application (you must have your green card at the time of application to be eligible for this Fellowship opportunity). EPA may verify this number with the U.S. Citizenship and Immigration Service of the Department of Homeland Security.

Pre-Application Materials: You may submit either a paper pre-application or an electronic pre-application **but not both** for this announcement. The necessary forms for submitting a STAR paper pre-application will be found on the NCER web site, <http://www.epa.gov/ncer/rfa/forms/>. To apply electronically, you must use the pre-application package available at https://apply.grants.gov/forms_apps_idx.html (see "Submission Instructions for Electronic Pre-Applications"). See Section IV for further information on application submission procedures.

Agency Contacts: Further information, if needed, may be obtained from the EPA/NCER resources listed below. To obtain information most quickly, consult the "Guidance & FAQs." If your question is not covered, then call the toll-free telephone number or send a query through the web-based query form. You will receive a personal response through a return telephone call or email. Information regarding this RFA obtained from sources other than those indicated below may not be accurate.

Guidance & FAQs: <http://www.epa.gov/ncer/guidance/faqs.html>

Toll-free telephone number: 1-800-490-9194

Web-based query form: <http://es.epa.gov/cgi-bin/ncerqamail.pl>

(iii) The Department of Homeland Security (DHS). <http://www.orau.gov/dhsed/>

Qualified students are encouraged to apply for scholarships and fellowships in the following programs: physical, biological, social, and behavioral sciences, engineering, mathematics, and computer science.

Award: Stipend for graduate students, including tuition allowances (check website for details)

(iv) The National Academies - Fellowship Opportunities.

Website: <http://www7.nationalacademies.org/fellowships/>

E-mail: infofell@nas.edu

Phone: (202) 334-2872

The Fellowship Office of Policy and Global Affairs administers predoctoral, dissertation, and postdoctoral fellowship programs in research-based fields of study. The office currently administers the following programs: Ford Foundation Diversity Fellowships for Achieving Excellence in College and University Teaching, the Resident Research Associateship Programs, the U.S. Department of Housing and Urban Development (HUD) Urban Scholars Postdoctoral Fellowships, the U.S. Department of State Jefferson Science Fellows Program, and the Vietnam Education Foundation Fellowships.

Ford Fellowship: This fellowship opportunity for minorities offers predoctoral, doctoral, and postdoctoral fellowships to increase the presence of underrepresented minorities on the nation's college and university faculties, to enhance diversity on campuses, and to address the persisting effects of past discrimination. Applicant must be a U.S. citizen. Those minorities included are: Native American Indian, Mexican American/Chicana/Chicano, Alaska Native (Eskimo or Aleut), Native Pacific Islander (Polynesian or Micronesian), Black/African American or Puerto Rican.

Award: \$16,000 to \$34,000 depending on the award plus tuition, travel, or other expenses.

(v) Smithsonian Institution Fellowship Program. ([application](#))

Graduate Student Fellowships: These fellowships allow students to conduct research for ten-week periods in association with Smithsonian research staff members. Applicants must be formally enrolled in a graduate program of study, must have completed at least one semester, and must not yet have been advanced to candidacy in a doctoral program.

Stipends:

Graduate Students - \$4,500

Deadline: January 15th (postmark) for awards to begin on or after June 1st

For more information see the previous section 'Information for Applying to the Smithsonian Institution Fellowship Program.'

Smithsonian Marine Station at Fort Pierce, Florida Fellowship: The Smithsonian Marine Station is located in Fort Pierce on the east coast of central Florida. It is situated in a biographical transitional zone where there is access to both tropical and temperate biota, and the Gulf Stream is easily accessible with its abundance of long-distance larvae and rich plankton. A diverse fauna is found in the variety of habitats from the mangroves, seagrass beds, and mud flats of the Indian River Lagoon to the sandy beaches and worm reefs of the oceanic coast and the various substrata of the offshore continental shelf including conquinoid limestone ledges, oculinid coral reefs, and shell hash plains.

Research - Marine scientists of various units within the Smithsonian conduct research that emphasizes studies of life histories, systematics, and ecology of selected marine organisms of the Indian River Lagoon and nearby continental shelf. Ongoing research programs include the systematics, ecology, and functional morphology of algae; life histories of meiofaunal organisms, sipunculans, polychaetes, and gastropods; ecology of foraminiferans; systematics, reproduction, and ecology of several groups of echinoderms and crustacea; studies of nutrient recycling, and invertebrate parasite-host interactions. A resident science program concentrates on chemical ecology, assessment of marine ecosystems, and life histories of marine invertebrates.

Term: Graduate Student - 10 weeks and 12 weeks

Stipend: Predoctoral - \$20,000 plus allowances

Graduate Student - \$4,500

Deadline: Applications are available in October, and the deadline for submission is February 15th (postmark).

Contact:

Joan Kaminski, Administrative Officer
Smithsonian Marine Station at Fort Pierce
701 Seaway Drive
Fort Pierce, FL 34949-3140

Tel: 772/465-6630 x100 fax: 772/461-8154
E-mail: kaminski@sms.si.edu
www.sms.si.edu

CTFS Research Grants Program: The Research Grants Program of the Center for Tropical Forest Science (CTFS) of the Smithsonian Tropical Research Institute is intended to provide opportunities for senior researchers, post-doctoral fellows, and graduate students to support research associated with the CTFS network of Forest Dynamics Plots. Anyone working directly in a Forest Dynamics Plot (FDP), analyzing data from a plot, or generating complementary data that strengthens FDP research programs is eligible to apply. Projects can be field-oriented, laboratory-based, or analytical, and scientifically, basic or applied in nature. Grants range from \$3,000-\$15,000, though a small number of post-doctoral grants (up to \$40,000) may be given. The CTFS Grants Program will make awards for projects three months to three years in length.

Grant proposals should include a Research Proposal (not to exceed 1500 words), a list of collaborators, curriculum vitae, proposed referees, and a detailed budget.

E-mail: ctfslist@stridc.si.edu
Fax: 202.786.2819
<http://www.ctfs.si.edu>

(vi) NOAA Coastal Services Center: Coastal Management Fellowship

Eligibility: Any student who will complete a master's, doctoral, or professional degree program in natural resource management or environmental-related studies at an accredited U.S. university between January 1, 2006, and July 31, 2007, is eligible. Students from a broad range of environmental programs are encouraged to apply. Students from non-U.S. institutions are not eligible.

Application Requirements

All applications must include:

1. Resume or curriculum vitae.
2. Statement of the applicant's goals with emphasis on what the applicant expects from and can contribute to the fellowship experience (500 words or less).
3. Two letters of recommendation, including one from the applicant's principal professor. If no principal professor exists, the faculty member who is most familiar with the applicant's academic work may be substituted.
4. Unofficial copies of all undergraduate and graduate student transcripts.

How to Apply: Application packages must be submitted to your nearest [Sea Grant program office](#). Each Sea Grant program office can endorse up to three applications to the NOAA Coastal Services Center for review. Applicants from states not served by a Sea Grant program office should contact the [fellowship coordinator](#) for more information on submitting an application.

For further information contact:

Fellowship Coordinator
NOAA Coastal Services Center
2234 South Hobson Ave.
Charleston, SC 29405
(843) 740-1273
csc.fellowships@noaa.gov

Further information on grants may be found at:

<http://www.cos.ucf.edu/cosgraduate/Awardsfunding.htm>

C. Health and Housing Services

(i) Student Health Insurance.

UCF Student Health Center, Main UCF Campus
(407) 823-2701 Toll free: (800) 613-8544
<http://www.shs.ucf.edu>

UCF's Student Health Center offers services to currently enrolled students such as general health care, REACH peer education, flu shots, smoking cessation, Ask-A-Doc, as well as a women's health center, a men's health center, and a full-service pharmacy.

Starting in Fall 2009, the College of Graduate Studies will be providing health insurance coverage for all university fellows and graduate assistants with appointments totaling 20 hours per week. Full annual coverage will be provided in two separate time periods. Students with qualifying assistantships and fellowships in the fall term will receive fall coverage, running from August 15 through December 31. Students with qualifying assistantships and fellowships in the spring term will receive coverage for the remainder of the year, running from January 1 through August 14. Students can enroll their spouse and/or children in Aetna health insurance using a "dependent only" form on the Aetna website. The open enrollment period is from July 1, 2009 through September 30, 2009; they must pay for this coverage themselves. Aetna provides a "semi-annual payment option" to pay the annual premium in two installments by credit card.

A student accident and sickness insurance plan is also available for purchase by UCF Students. The Health Insurance Plan works in conjunction with the University's Student Health Center. The plan covers services at the Health Center such as x-ray, lab work, procedures and prescriptions. The plan is a PPO policy, which has a network of preferred providers and facilities of care outside the Health Center.

Plan Information: Domestic Students ([Chesapeake Life Insurance Company page](#))
International Students ([International Student Insurance Page](#))

Your personal health and well being are critical elements of academic success. The Student Health Center is a wonderful resource for students, but students must be prepared to pay for

some services. Student health insurance can help with some of the costs of services incurred at health care providers.

All students should be covered by a good health insurance plan. The state of Florida requires international students to have health insurance coverage. Some students have health insurance from their employers; those who do not have health insurance should consider purchasing a plan. The university offers a health insurance plan and there are independent companies that offer student plans.

(ii) Housing Services

UCF Off-Campus Student Resource Center

Main UCF Campus: Housing Administration building room 123
407-823-6505

http://www.housing.ucf.edu/ocsrc/mission/mission_frame.htm

The Off-Campus Student Resource Center offers services such as rental insurance information, off-campus apartment/housing listings, off-campus roommate listings, carpooling assistance, sublease listings, furniture rental information, legal referral workshops for first time renters, and complaint resolution for students, landlords, and parents.

IX. MISCELLANEOUS

A. Additional Student Resources

a) Biology Graduate Student Lounge: BL 311

b) Graduate Student Teaching Office: BL 201 All GTA's may request to hold their office hours here to avoid disruptions in their laboratories. Desks are assigned on an as-needed basis. During some terms GTA's will have to share desks.

c) Computer Lab: BL 305 (Note: Your advisor must request a key card be made to access this lab. Please have your advisor send a list to Ms. Barbara Erwin-Offineer, Administrative Assistant (berwin@pegasus.cc.ucf.edu) with your name and employee identification number.)

d) Other useful websites:

Biology Department Website:	http://www.cos.ucf.edu/biology
UCF Graduate Catalog	http://www.ucf.edu/catalog
COS Graduate Website for Students	http://www.cos.ucf.edu/cosgraduate/index.htm
UCF Graduate Website for Students	http://www.graduate.ucf.edu
Academic Calendar:	http://www.ucf.edu/info/acad_calendar.php
Library	http://library.ucf.edu/
Graduate Student Association	http://www.gsa.graduate.ucf.edu/
University Writing Center	http://www.uwc.ucf.edu/
The Counseling Center	http://counseling.sdes.ucf.edu/

B. Office Staff: Job Responsibilities:

Biology Chairman's Office:

Barbara Erwin-Offineer, Administrative Assistant (room 302)

Responsible for processing of all Travel Authorization Requests, as well as all matters related to hiring, forms, and contracts, biweekly timesheets, certifications, pay increases, and terminations of all departmental employees. Approve all purchasing card transactions for the entire department, approve requisitions, maintain OPS budget for department as well as handling all Time & Effort reporting, evaluations, and activity reporting for all faculty, adjuncts, grad students, and other employees.

Philip Edwards, Coordinator Administrative Services (room 302)

Responsible for ordering supplies for teaching and research, inventory control, supervision of lab techs and lab student assistants, construction and renovation projects, maintenance of vehicles and research facilities, reimbursements (other than travel), supervision and control of all contracts, grants, and foundation accounts, and control and use of the departmental purchasing card.

Sheri Pearson, Accountant (room 302)

Assists with all financial issues.

Biology Department General Administration:

Frank Logiudice, Undergraduate Program Coordinator (room 301)

Responsible for the overall maintenance and development of the undergraduate program for the Department of Biology. This involves coordinating the curriculum and determining an appropriate program of study for undergraduate students, supervising undergraduate advising and handling difficult advising situations such as transfer course credit, presenting the undergraduate program at freshmen and transfer orientations, class scheduling and determining the sequence of course offerings, developing mechanisms for measuring and evaluating the program for Institutional Effectiveness, and representing the department in all undergraduate matters.

Rafiq Basaria, Undergraduate Program Administrator (room 301)

Oversees undergraduate registration and advising, and reviewing undergraduate requests for overrides and verifying requests for accuracy. He also maintains confidential student information files and academic records.

Dr. Graham A.J. Worthy, Graduate Program Coordinator (room 402A)

Responsible for the overall maintenance and development of the graduate program for the Department of Biology, including acting as Chair of the Graduate Committee. This involves overseeing the admission of students into the programs, coordinating the curriculum and determining an appropriate program of study for graduate students, supervising all non-thesis graduate students, developing mechanisms for measuring and evaluating the program for Institutional Effectiveness, and representing the department in matters relating to our graduate programs.

Gayle Story, Graduate Program Administrator (room 301)

Responsible for implementing and assisting the graduate programs in the department. Duties include coordination of classes, registering graduate students, and updating of audits with course substitutions to meet graduation requirements. Also responsible for assisting with graduate contracts, tuition waivers, scheduling graduate teaching assistants for laboratories, and scheduling and coordination of qualifying exams, proposal defenses, candidacy exams, and thesis/dissertation defenses.

Karen Reinemund, Office Assistant (room 301)

Assists both the Graduate and Undergraduate Program Administrators.

Other Departmental Staff:

Beverly Boyers, Teaching Lab Specialist (room 208)

Designs and develops lab exercises for General Biology and Honor's Biology, oversees technicians in the preparation of those labs, maintains appropriate supply inventories, oversees repair of lab equipment and teaching aids, and instructs others in the proper use of this equipment.

Joey Thompson, Information Technology Support (room 401A)

Assists with all aspects of IT and software support.

Erin Lowe, Lab Technician (room 309)

Preparation, set-up, and removal of Genetics and Plant Taxonomy/Kingdom labs including ordering and stocking new inventory for lab and faculty personnel, maintaining chemical inventories and documentation for BioPrep, making media solutions and cultures for student labs, planting specimens and gathering plants from arboretum, performing basic maintenance on lab equipment, scheduling repair visits or larger mechanical equipment, instructing assigned student assistants in the preparation of labs, and advising GTAs of lab protocols

Maria Alvarez-Medina, Lab Technician (room 208)

Job duties include setting up General Biology labs and assisting Teaching Assistants with any problems they might encounter while running the experiments with the students.

Jeff Erickson, Senior Lab Technician (room 309)

Assists with faculty research and teaching lab support, shipping and receiving, and with technical support and equipment.

C. Department of Biology Graduate and Research Faculty:

D.W. Borst, PhD (UCLA)	Professor
C. Calestani, PhD (Parma - Italy)	Assistant Professor
W.C.R. Crampton, PhD (Oxford - England)	Assistant Professor
J.E. Fauth, PhD (Duke)	Associate Professor
K.M. Fedorka, PhD (South Carolina)	Assistant Professor
C.R. Hinkle, PhD (Tennessee)	Professor and Department Chair
E.A. Hoffman, PhD (Oregon State)	Assistant Professor
D.G. Jenkins, PhD (Virginia Tech)	Associate Professor
A.I. Morrison-Shetlar, PhD (Dundee - Scotland)	Professor and Dean, College of Undergraduate Studies
R.F. Noss, PhD (Florida)	Professor
C.L. Parkinson, PhD (Louisville)	Associate Professor
P.F. Quintana-Ascencio (SUNY Stony Brook)	Associate Professor
M.F. Quigley (Louisiana State)	Associate Professor, and Director, Landscape and Natural Resources, and Arboretum
M. Stern, PhD ()	Professor and Associate Dean, College of Graduate Studies
B. Von Holle, PhD (Tennessee)	Assistant Professor
L.H. von Kalm, PhD (Monash - Australia)	Associate Professor and Associate Chair
L.J. Walters, PhD (South Carolina)	Professor
J.F. Weishampel, PhD (Virginia)	Professor
G.A.J. Worthy, PhD (Guelph - Canada)	Professor and Graduate Program Coordinator

Emeritus Faculty:

L.M. Ehrhart, PhD (Cornell)	Emeritus Professor
L.L. Ellis PhD (Oklahoma)	Emeritus Professor
J.L. Koevening, PhD (Kansas)	Emeritus Professor
D.T. Kuhn, PhD (Arizona State)	Emeritus Professor
J.A. Osborne, PhD (Kansas State)	Emeritus Professor
F.F. Snelson, Jr., PhD (Cornell)	Emeritus Professor
I.J. Stout, PhD (Washington State)	Emeritus Professor
W.K. Taylor, PhD (Arizona State)	Emeritus Professor

RESEARCH FACULTY INTERESTS:

BORST, DAVID W.

email: dborst@mail.ucf.edu

Dr. Borst's research is focused on comparative endocrinology, with specific interests in arthropod development, growth, and reproduction and his lab studies these topics using biochemical, cellular and molecular biology techniques. Hormones have important roles in the regulation of many physiological, developmental, and behavioral processes. Perhaps nowhere is this regulation more critical than during molting and reproduction. Molting is critical for the continued growth and survival of the individual. Similarly, the production of offspring is critical for the survival of the species. Both processes must be adjusted to meet rapid changes in the

environment. This lab is studying the physiological and cellular mechanisms used by arthropods to regulate their molting and reproduction. They are particularly interested in the role(s) of the juvenile hormones (JH) and methyl farnesoate (MF) in regulating these processes in grasshoppers and lobsters, respectively. To this end, they have developed sensitive methods (RIA, HPLC, ELISA) to measure hemolymph levels of several compounds, including JH, MF, and vitellogenin (yolk protein precursor).

Selected Publications:

- Nagaraju, G.P.C. and Borst, D.W. 2008. Methyl farnesoate couples environmental changes to testicular development in the crab *Carcinus maenas*. *The Journal of Experimental Biology* 211, 2773-2778
- D.L. Lovett, C.A. Tanner, K. Glomski, T.M. Ricart, and D.W. Borst 2006. The effect of seawater composition and osmolality on hemolymph levels of methyl farnesoate in the green crab *Carcinus maenas*. *Comp. Biochem. Physiol.* A143: 67-77.
- Henry, R. P. and Borst, D.W. 2006. Effects of eyestalk ablation on carbonic anhydrase activity in the euryhaline blue crab, *Callinectes sapidus*: neuroendocrine control of enzyme expression. *J. Exp. Zool.* 305A: 23-31.
- Li, S. Ouyang, Y. C., Ostrowski, E., and Borst, D. W. 2005. Regulation of juvenile hormone synthesis by the corpora allata from the lubber grasshopper, *Romalea microptera*. *Peptides.* 26: 63-72.
- Mutun, S. and Borst, D. W. 2004. Intraspecific mitochondrial DNA variation and historical biogeography of the lubber grasshopper, *Romalea microptera*. *Annals of the Entomol. Soc. of America* 97: 681-696.
- Li, S., Friesen, J. A., Fei, H., Ding, X., and Borst, D. W. 2004. The lobster mandibular organ produces soluble and membrane-bound forms of 3-hydroxy-3-methylglutaryl-coenzyme A reductase. *Biochem J.* 381:831-40.
- Holford, K. C., Edwards, K. A., Bendena, W. G., Tobe, S. S, Wang, W., and Borst, D. W. 2004. Purification and characterization of a mandibular organ protein from the American lobster, *Homarus americanus*: a putative farnesoic acid O-methyl-transferase. *Insect Biochem. Mol. Biol.* 34:785-98.
- Hatle, J. D., Miller, W. A., and Borst, D. W. 2003. Canalization of development and ecdysteroid timing during the last instar in lubber grasshoppers. *J. Insect Physiol.* 49: 73-80
- Borst, D W., G. Wainwright, and H. H. Rees. 2002. In vivo regulation of the mandibular organ in the edible crab, *Cancer pagurus*. *Proc. Royal Soc.: Biol. Sci.* 269: 483-490.
- Lovett, D.L., Verzi, M.P., Clifford, P.D. and Borst, D.W. 2001. Hemolymph levels of methyl farnesoate increase in response to osmotic stress in the green crab, *Carcinus maenas*. *Comp. Biochem. Physiol. A:*128:299-306.

CALESTANI, CRISTINA

email: calestac@mail.ucf.edu

Dr. Calestani's main research interest focuses on the study of gene regulatory networks underlying embryo development and their evolution. They use as their model system the sea urchin embryo and in particular study the genetic pathways that control mesoderm specification and differentiation. The sea urchin embryo is a robust model system for studies such as 1) a large number of embryos can be easily produced and cultured in the laboratory making it an ideal system for *in vivo* studies; 2) embryos are optically clear and have a morphologically simple development; 3) gene transfer procedures can be used to produce transgenic embryos; 4) embryos can withstand extensive micromanipulation; 5) the full genome sequence has been published, 6) several genomic libraries and cDNA arrayed libraries have been constructed in different sea urchin species that can be employed in comparative genomics studies, and 7) sea urchins (Echinoderms) are evolutionarily closely related to the chordates

This research is important to bring new insights into the developmental genetic programs of higher organisms and their evolution. The developmental program of organisms as different as sea urchin and human share a common set of genes. What varies is the temporal and spatial pattern of gene expression during development. The information about when, where and at which level a gene has to be expressed during embryonic development is primarily encoded in its

cis-regulatory regions. New technologies and genomic sequence data available today allow large-scale studies of the regulatory regions of the genome. These innovations and data are crucial in understanding the structure and function of the integrated genetic system underlying development.

Selected Publications:

- Castoe, T. A., T. Stephens, B.P. Noonan and C. Calestani (2006). A novel group of type I polyketide synthases (PKS) in animals and the complex phylogenomics of PKSs. *Gene*, 2007 May 1; 392:47-58.
- The Sea Urchin Genome Sequencing Consortium (2006). The Genome of the Sea Urchin *Strongylocentrotus purpuratus*. *Science* vol. 314, pp. 941-52.
- Quarrie, S.A., A. Steed, C. Calestani, A. Semikhodskii, C. Lebreton, C. Chinoy, N. Steele, D. Pljevljakusić, E. Waterman, J. Weyen, J. Schondelmaier, D. Z. Habash, P. Farmer, L. Saker, D. T. Clarkson, A. Abugalieva, M. Yessimbekova, Y. Turuspekov, S. Abugalieva, R. Tuberosa, M-C. Sanguineti, P. A. Hollington, R. Aragués, A. Royo, and D. Dodig (2005). A high-density genetic map of hexaploid wheat (*Triticum aestivum*, L.) from the cross Chinese Spring x SQ1 and its use to compare QTLs for grain yield across a range of environments. *Theor. Appl. Gen* 110:865 – 880.
- Calestani C., Rast J.P., Davidson E.H., (2003). Isolation of pigment cell specific genes in the sea urchin embryo by differential macroarray screening. *Development* 130:4587-4596.
- Ransick A., Rast J.P., Minokawa T., Calestani C. and Davidson E.H., (2002). New early zygotic regulators of endomesoderm specification in sea urchin embryos discovered by differential array hybridization. *Dev. Biol.* 246:132-147.
- Davidson E.H., Rast J.P., Oliveri P., Ransick A., Calestani C., Yuh C.H., Minokawa T., Amore G., Hinman V., Arenas-Mena C., Otim O., Brown T., Livi C.B., Lee P.Y., Revilla R., Clarke P.J.C., Rust A.G., Pan Z., Arnone M.I., Rowen L., Cameron R.A., McClay D.R., Hood L. and Bolouri H. (2002). A provisional regulatory gene network for specification of endomesoderm in the sea urchin embryo. *Dev. Biol.* 246:162-190.
- Davidson E.H., Rast J.P., Oliveri P., Ransick A., Calestani C., Yuh C.H., Minokawa T., Amore G., Hinman V., Arenas-Mena C., Otim O., Brown T., Livi C.B., Lee P.Y., Revilla R., Rust A.G., Pan Z.J., Schilstra M.J., Clarke P.J.C., Arnone M.I., Rowen L., Cameron A.R., McClay D.R., Hood L., and Bolouri H. (2002). A genomic regulatory network for development. *Science* 295:1669-1678.
- Rast J.P., Amore G., Calestani C., Livi C.B., Ransick A., and Davidson E.H. (2000). Recovery of developmentally defined gene sets from high-density cDNA macroarrays. *Dev. Biol.* 228:270-286.

CRAMPTON, WILLIAM C.R.

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Dr. Crampton's research program investigates the ecological, behavioral, and evolutionary mechanisms that generate and regulate species diversity. With more than 6,000 species, Neotropical freshwater fishes represent the richest vertebrate fauna on earth (c. 10% of all vertebrates). He is interested in how this diversity is generated and maintained, how resilient it is to human pressure, and how it can be protected. To approach these questions he uses, as a model group, the gymnotiform electric knifefishes. These remarkable fishes generate stereotyped, species-specific electric communication signals that provide an unparalleled opportunity to understand the mechanisms of diversification. He is currently focusing on whether communication signals can drive speciation in electric fishes. He is also undertaking a long term program of freshwater fish biodiversity inventories in the Amazon basin.

Selected Publications:

- Albert, J.S. & Crampton, W.G.R. (2009). A new species of electric knifefish, genus *Compsaraia* (Gymnotiformes: Aptereronotidae) from the Amazon River, with extreme sexual dimorphism in snout and jaw length. *Systematics & Biodiversity* 7 (1) 81-92.
- Milhomem, S.S.R., Pieczarka, J.C., Crampton, W.G.R., Silva, D.S., de Souza, A.C.P., Carvalho, J.R., & Nagamachi, C.Y. (2008). Chromosomal evidence for a putative cryptic species in the *Gymnotus carapo* species-complex (Gymnotiformes, Gymnotidae). *BMC Genetics* 9, 75 (1-10).

- Crampton, W.G.R., Davis, J.K., Lovejoy, N.R., & Pensky, M. (2008). Multivariate classification of animal communication signals: A simulation-based comparison of alternative signal processing procedures using electric fishes. *Journal of Physiology, Paris*. 102 304-321.
- Crampton, W.G.R. (2008) Ecology and life history of an Amazon floodplain cichlid: the discus fish *Symphysodon* (Perciformes, Cichlidae). *Neotropical Ichthyology* 6(4) 599-612.
- Crampton, W.G.R., Chapman, L. J., & Bell, J. (2008) Interspecific variation in gill size is correlated to ambient dissolved oxygen in the Amazonian electric fish *Brachyhypopomus* (Hypopomidae, Gymnotiformes). *Environmental Biology of Fishes* 83 223-235.
- Rodriguez-Cattaneo, A., Pereira, A.C., Aguilera, P.A., Crampton, W.G.R., & Caputi, A.A. (2008) Species-specific diversity of a fixed motor pattern: the electric organ discharge of *Gymnotus*. *PLoS One* 3(5) 1-13.
- Giora, J., Malabarba, L.R., & Crampton, W.G.R. (2008) *Brachyhypopomus draco* a new sexually dimorphic species of Neotropical electric fish from southern Brazil (Gymnotiformes: Hypopomidae). *Neotropical Ichthyology* 6 (2) 159-168.
- Correa, S.B., Crampton, W.G.R., Chapman, L.J., and Albert, J.S. (2008). Fish assemblages in an upper Amazon floodplain: a comparison of adjacent habitats during the flood season. *Journal of Fish Biology* 72 629-644.
- Cognato, D., Richer-de-Forges, M.M., Albert, J.S. & Crampton, W.G.R. (2007) *Gymnotus chimarrao*: a new species of Neotropical electric fish (Gymnotiformes: Gymnotidae) from Southern Brazil. *Ichthyological Exploration in Freshwaters* 18 (4) 375-382.
- Crampton, W.G.R. (2007). Diversity and adaptation in deep channel Neotropical electric fishes. Pp. 283-339. In: *Fish Life in Special Environments* (Eds. P. Sebert, D.W. Onyango & B.G. Kapoor). Science Publishers, Enfield, NH.

EHRHART, LLEWELLYN M.

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Emeritus Professor Ehrhart is a vertebrate zoologist whose research program is focused on reproduction, population biology, ecological geography, and conservation biology of marine turtles. His most recent research interest involves characterization of juvenile and subadult populations in coastal lagoons and over near-shore reefs, as well as long-term studies of nesting beach productivity. He is broadly interested in herpetology and mammalogy, particularly the distribution, ecology, and conservation of Florida amphibians, reptiles and mammals. He was an invited contributor to the World Conference on Sea Turtle Conservation and the Western Atlantic Turtle Symposia (I and II) and served recently as Team Leader of the Southeastern Region Loggerhead and Green Turtle Recovery Team.

Selected Publications:

- Chaloupka, M., K. Bjorndal, G. Balazs, A. B. Bolten, L. Ehrhart, C. Limpus, H. Suganuma, S. Troeng and M. Yamaguchi. 2008. Encouraging outlook for recovery of a once-severely-exploited marine megaherbivore. *Global Ecology and Biogeography*. 17: 297-304
- Brock, K., J. Reece and L. Ehrhart. The effects of artificial beach nourishment on marine turtles: differences between loggerhead and green turtles. *Restoration Ecology*. Published article on-line 3-Jan.-2008: 1-11.
- Hannan, L. B., J. D. Roth, L. M. Ehrhart, and J. F. Weishampel. 2007. Dune vegetation fertilization by nesting sea turtles. *Ecology*. 88(4):1053-1058
- Hirama, S. and L. M. Ehrhart. 2007. Description, prevalence and severity of green turtle fibropapillomatosis in three developmental habitats on the east coast of Florida. *Florida Scientist*. 70:435-438
- Ehrhart, L. M., W. E. Redfoot and D. A. Bagley. 2007. Marine turtles of the central region of the Indian River Lagoon system. *Florida Scientist*. 70:415-434.
- Eckert, S. A., D. Bagley, S. Kubis, L. Ehrhart, C. Johnson, K. Stewart, and D. DeFreese. 2006. Internesting and postnesting movements and foraging habitats of leatherback sea turtles (*Dermochelys coriacea*) nesting in Florida. *Chelonian Conservation and Biology*. 5(2): 239-248
- Weishampel, J. F., D. A. Bagley and L. M. Ehrhart. 2004. Earlier nesting by loggerhead sea turtles following sea surface warming. *Global Change Biology*. 10 (8):1-4.
- Lohmann, K.J., C.M.F. Lohmann, L.M. Ehrhart, D.A. Bagley and T. Swing. 2004. Geomagnetic mapping facility in sea turtles. *Nature*. 428:909-910.

- Weishampel, J. F., D. A. Bagley, L. M. Ehrhart and B. L. Rodenbeck. 2003. Spatiotemporal patterns of annual sea turtle nesting behaviors along an East Central Florida beach. *Biological Conservation* 110 (2003):295-303.
- Ehrhart, Llewellyn M., Dean A. Bagley, and William E. Redfoot. 2003. Loggerhead turtles in the Atlantic Ocean: Geographic Distribution, Abundance and Population Status. Pp. 157-174 *In*: Bolten, A. and B. Witherington (eds.), *Loggerhead Sea Turtles*. Smithsonian Institution Press, Washington.

FAUTH, JOHN E.

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Dr. Fauth's research emphasizes quantitative, experimental approaches to understand the intensity and relative importance of disturbance (pond drying, fire) and biotic interactions (competition, predation) in structuring freshwater wetlands. Recent experiments involved altering hydroperiod by draining manufactured ponds, and manipulating predator distributions in natural, ephemeral ponds. Together with biotechnologists and government scientists, he also tests cellular-diagnostic systems designed to assess ecosystem health. He has applied this system to examine coral bleaching in the Florida Keys, recovery of bivalves from the T/V Exxon Valdez oil spill, and responses of sentinel species to various natural and anthropogenic stresses. His research is motivated by a desire to prevent - and eventually reverse - declines in freshwater and marine organisms.

Selected Publications:

- Knickerbocker, C.M., S. Leitholf, E.L. Stephens, D. J. Keellings, H. Laird, C.J.R. Anderson, J. E. Fauth, and P.F. Quintana-Ascencio. Tree encroachment of a sawgrass (*Cladium jamaicense*) marsh within an increasingly urbanized ecosystem. *Natural Areas Journal*, in press.
- Fisher, E. M., J. E. Fauth, P. Hallock, and C. M. Woodley. 2007. Lesion regeneration rates in reef-building corals (*Montastraea* spp.) as indicators of colony condition. *Marine Ecology Progress Series* 339:61-71.
- Downs, C. A., J. E. Fauth, D. Wetzel, P. Hallock, J. F. Halas, J. C. Halas, R. Curry and C.M. Woodley. 2006. Investigating coral reef degradation at Alina's Reef in the Florida Keys: Cellular physiology of white grunt (*Haemulon plumieri*) as a biological indicator. *Environmental Forensics Journal* 7:15-32.
- Downs, C. A., J. E. Fauth, C. Robinson, R. Curry, B. Lanzendorf, John Halas, Judith Halas and C. M. Woodley. 2005. Cellular diagnostics and coral health: declining coral health in the Florida Keys. *Marine Pollution Bulletin* 51:558-69.
- Resetarits, W. J., Jr., and J. E. Fauth. 2005. Diffuse competition and continuous niche shifts in size-structured populations of predatory salamanders. *Community Ecology* 6:101-107.
- Schurbon, J. M., and J. E. Fauth. 2004. Fire as friend and foe of amphibians - a reply. *Conservation Biology* 18:1156-1159.
- Schurbon, J. M., and J. E. Fauth. 2003. Effects of prescribed burning on amphibian diversity in a southeastern U. S. national forest. *Conservation Biology* 17:1338-1349.
- Downs, C. A., J. E. Fauth, J. Halas, P. Dustan, J. Bemiss, and C. M. Woodley. 2002. Oxidative stress and seasonal coral bleaching. *Free Radical Biology & Medicine* 33: 533 -543.
- Eason, G. E., and J. E. Fauth. 2001. Ecological correlates of anuran species richness in temporary pools: a field study in South Carolina, USA. *Israel Journal of Zoology* 47:347-366.
- Downs, C. A., E. Mueller, S. Phillips, J. E. Fauth, and C. M. Woodley. 2000. A molecular biomarker system for assessing the health of coral (*Montastrea faveolata*) during heat stress. *Marine Biotechnology* 2:533-544.
- Fauth, J. E. 1999. Identifying potential keystone species from field data: an example from temporary ponds. *Ecology Letters* 2:36-43.
- Fauth, J. E. 1998. Investigating geographic variation in interspecific interactions using common garden experiments. Pages 394-415 in: W. J. Resetarits, Jr., and J. Bernardo, editors. *Experimental Ecology: Issues and Perspectives*. Oxford University Press, New York.
- Resetarits, W. J., Jr., and J. E. Fauth. 1998. From cattle tanks to Carolina bays: the utility of model systems for understanding natural communities. Pages 133-151 in: W. J. Resetarits, Jr., and J. Bernardo, editors. *Experimental Ecology: Issues and Perspectives*. Oxford University Press, New York.

FEDORKA, KENNETH M.email: fedorka@mail.ucf.edu

The number of mating strategies used by males and females to pass on their genes is extensive. However, controversy exists over the basic mechanisms by which these strategies coevolve. Dr. Fedorka's research focuses on 1) the different strategies employed by the sexes to maximize fitness, 2) the various physiological, morphological and behavioral consequences of these strategies and 3) if and when these strategies are expected to conflict (i.e. sexual conflict). Sexual conflict is in principle the same as the coevolution between an obligate parasite and its host, and can create a perpetual tug of war between the sexes that influences all aspects of reproduction from gametes to social behavior. Currently, his lab is focusing on three research initiatives. These include (1) Examining the coevolutionary dynamics between the male ejaculate and the female immune response to insemination in *D. melanogaster*, (2) Investigating the role of sexual conflict in speciation using the *Allonemobius* ground crickets, and (3) Modeling the potential for sexual conflict to produce multiple mating strategies within a single system.

Selected Publications:

- Winterhalter, W.E. and Fedorka, K.M. 2009. Sex differences in immune gene expression prior to and after mating in *Drosophila melanogaster*. *Proceedings of the Royal Society B: Biological Sciences* 276:1109-1117.
- Fedorka, K.M., Linder, J., Winterhalter, W.E., and Promislow, D.E.L. 2007. Post-mating disparity between potential and realized immune response in *Drosophila melanogaster*. *Proceedings of the Royal Society B: Biological Sciences* 274:1211-1217
- Fedorka, K.M., Winterhalter, W.E. and Mousseau, T.A. 2007. The evolutionary genetics of sexual size dimorphism in the cricket *Allonemobius socius*. *Heredity* 99:218-223.
- Fedorka, K.M., and Mousseau, T.A. 2007. Immune system activation affects the male sexual signal and reproductive potential in crickets. *Behavioral Ecology* 18:231-235.
- Promislow, D.E.L., Fedorka, K.M. and Burger, J.E.P. 2006. Evolutionary biology of aging: future directions. In *The Handbook of the Biology of Aging*. Eds. Austad, S. and Masoro, E. 6th edition.
- Fedorka, K.M., and M. Zuk. 2005. Sexual conflict and female immune suppression in the ground cricket, *Allonemobius soicus*. *Journal of Evolutionary Biology* 18:1515-1522.
- Fedorka, K.M., Zuk, M. and T.A. Mousseau. 2005. Natural selection drives the link between male immunity and reproductive potential. *Canadian Journal of Zoology* 83:1012-1014.
- Promislow, D.E.L., Fedorka, K.M. and Burger, J.E.P. 2005. Evolutionary biology of aging: future directions. In *The Handbook of the Biology of Aging*. Eds. Austad, S. and Masoro, E. 6th edition.
- Fedorka, K.M. and T.A. Mousseau. 2004. Female mating bias results in conflicting sex-specific offspring fitness. *Nature*, 429:65-67.
- Fedorka, K.M., M. Zuk and Mousseau, T.A. 2004. Immune suppression and the cost of reproduction in the cricket, *Allonemobius socius*. *Evolution* 58: 2478-2485.
- Fedorka, K.M. and T.A. Mousseau. 2002. Nuptial gifts and the evolution of male size. *Evolution* 56:590-596.

HINKLE, C. ROSSemail: rhinkle@mail.ucf.edu

Dr. Hinkle is Chair of Biology and his primary research interests are in plant ecology, landscape ecology, and applied conservation biology. For more than ten years, he and his Postdoctoral Research Associates have been members of a multidisciplinary team of scientists who have experimentally evaluated ecosystem responses to double ambient atmospheric CO₂ including ecosystem carbon dynamics, above and below ground biomass production, ecosystem water dynamics, ecosystem response to fire, nutrient cycling, and ecosystem structural components. He is also interested in applied research related to the conservation of native ecosystems via implementation of local community-based land acquisition and ecosystem management programs. He chairs a committee of scientists in Brevard County, Central Florida, in the design and implementation of conservation reserves. The objectives of the Brevard county program are

directed toward optimizing the long term sustainability of biological diversity in a rapidly urbanizing landscape. Research interest areas include fire ecology and landscape management, invasive species management, restoration ecology of degraded habitat, and the establishment of long term ecological monitoring and research of conservation areas. He continues to be an active member of a national team of scientists who are designing and implementing the National Ecological Observatory Network with the National Science Foundation to address national priorities for ecological monitoring and research. Dr. Hinkle is a strong proponent of bringing together integrated research teams to approach solutions to ecological problems that require multidiscipline teams of scientists to solve complex ecological problems.

Selected Publications:

- Seiler, T.J., D.P. Rasse, J. Li, P. Dijkstra, H.P. Anderson, D.P. Johnson, T.L. Powell, B.A. Hungate, C. R. Hinkle, and B.G. Drake. 2009. Disturbance, rainfall and contrasting species responses mediated aboveground biomass response to 11 years of CO₂ enrichment in a Florida scrub-oak ecosystem. *Global Change Biology* 15: 356-367.
- Bracho, R., T.L. Powell, S. Dore, J. Li, C. R. Hinkle, and B.G. Drake. 2008. Environmental and biological controls on water and energy exchange in Florida scrub oak and pine flatwoods ecosystems, *J. Geophys. Res.* 113, G02004, doi:10.1029/2007JG000469.
- Li, Jiahong, T.L. Powell, T.J. Seiler, D.P. Johnson, H.P. Anderson, R. Bracho, B.A. Hungate, C.R. Hinkle, and B.G. Drake. 2007. Impacts of Hurricane Frances on Florida scrub-oak ecosystem processes: defoliation, net CO₂ exchange and interactions with elevated CO₂. *Global Change Biology* 13: 1101-1113.
- Lea, A., P. Brown, F.P. Day, B.A. Hungate, B.G. Drake and C.R. Hinkle. 2007. Root biomass and nutrient dynamics in a scrub-oak ecosystem under the influence of elevated atmospheric CO₂. *Plant and Soil* 292:219-232
- Day, F.P., D.B. Stover, A.L. Pagel, B.A. Hungate, J.J. Dilustro, B.T. Herbert, B.G. Drake and C.R. Hinkle. 2006. Rapid root closure after fire limits fine root responses to elevated atmospheric CO₂ in a scrub oak ecosystem in central Florida, USA. *Global Change Biology* 12:1047-1053.
- Dore, S., Hymus, G.J. Johnson, D.P. Hinkle, C.R. Valentini, R. and Drake, B.G. 2003. Cross validation of open-top chamber and eddy covariance measurements of ecosystem CO₂ exchange in a Florida scrub-oak ecosystem. *Global Change Biology* 9:84-95.
- Dijkstra, P., G. Hymus, D. Colavito, D.A. Viegas, C.M. Cundari, D.P. Johnson, B.A. Hungate, C. R. Hinkle, and B.G. Drake. 2002. Elevated atmospheric CO₂ stimulates aboveground biomass in a fire-regenerated scrub-oak ecosystem. *Global Change Biology* 8:90-103.
- Hymus, G.J., J-H. Pontailier, J. Li, P. Stiling, C. R. Hinkle, and B.G. Drake. 2002. Seasonal variability in the effect of elevated CO₂ on leaf area index in a scrub-oak ecosystem. *Global Change Biology* 8:931-940.
- Li, J.-H., P. Dijkstra, G. J. Hymus, R.M. Wheeler, W.C. Piastuch, C.R. Hinkle and B.G. Drake. 2000. Leaf senescence of *Quercus myrtifolia* as affected by long-term CO₂ enrichment in its native environment. *Global Change Biology* 6:727-733.
- Day, F.P., E.P. Weber, C.R. Hinkle, & B.G. Drake. 1996. Effects of elevated CO₂ on fine root length and distribution in an oak-palmetto scrub ecosystem in central Florida. *Global Change Biology* 2:101-106.

HOFFMAN, ERIC A.

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Dr. Hoffman's research interests involve evolutionary questions concerning patterns of genetic and morphological variation. In particular, he is interested in how evolutionary forces (selection, migration, and genetic drift) work in various ways to influence the evolutionary history of a species. Additionally, his interests include how molecular markers can be used to determine the presence of natural selection on particular genotypes or phenotypes. Here, populations that show discordance between various molecular markers can be used to infer the effects of natural selection. His recent work has taken a more genomic approach to studying comparative phenotypic variation and the evolution of novel phenotypes.

Selected Publications:

- Degner, Jacob F, Tyler D. Hether, and Eric A. Hoffman. Eight novel tetranucleotide and five cross-species dinucleotide microsatellite loci for the ornate chorus frog (*Pseudacris ornata*). *Molecular Ecology Resources* 2009, In press.
- Hoffman, Eric A., Jennifer L. Kovacs and Michael A. D. Goodisman. 2008. Genetic structure and breeding system in a social wasp and its social parasite. *BMC Evolutionary Biology* 2008:8:239, pp. 1-13.
- Kovacs, Jennifer. L., E. A. Hoffman and, M. A. D. Goodisman. 2008. Mating success in the polyandrous social wasp *Vespula maculifrons*. *Ethology* 114:340-350.
- Goodisman, M. A. D., Jennifer. L. Kovacs, and Eric A. Hoffman. 2007. The significance of multiple mating in the social wasp *Vespula maculifrons*. *Evolution* 61:2260-2267.
- Hoffman, Eric A. and M. A. D. Goodisman. 2007. Gene expression and the evolution of phenotypic diversity in social wasps. *BMC Biology* 5:23.
- Michael A. D. Goodisman, Jennifer L. Kovacs and Eric A. Hoffman. 2007. Lack of conflict during queen production in the social wasp *Vespula maculifrons*. *Molecular Ecology* 16:2589-2595.
- Harlin-Cognato, A., Eric A. Hoffman, and A. G. Jones. 2006. Gene cooption without duplication during the evolution of a male-pregnancy gene in pipefish. *Proceedings of the National Academy of Sciences USA* 103, 19407-19412.
- Hoffman, E. A., F. W. Schueler, A. G. Jones, and M. S. Blouin. 2006. An assessment of selection on a color polymorphism in the northern leopard frog. *Molecular Ecology*, 15:2627-2641.
- Hoffman, E. A., K. Mobley, and A. G. Jones. 2006. Male pregnancy and the evolution of body segmentation in seahorses and pipefish. *Evolution*, 60:404-410.
- Kolm, N., E. A. Hoffman, J. Olsson, A. Berglund, and A. G. Jones. 2005. Group stability and homing behavior but no kin group structures in a coral reef fish. *Behavioral Ecology*, 16:521-527.

JENKINS, DAVID G.

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Dr. Jenkins is interested in the processes that determine ecological community structure and function, especially the interplay between regional (dispersal, colonization, invasion, community assembly, etc.) and local (competition, predation, abiotic factors) processes. Aquatic ecology has historically focused on the latter processes; so he has focused more on regional processes. He and his students study these topics in wetlands, especially the small isolated wetlands that used to dot the landscape before humans drained and filled the low spots in the landscape. These wetlands serve as upside-down islands: habitats that are essential to a surprising variety of organisms, but that are embedded in an inhospitable "sea" of dry land. They use field sampling and experiments, as well as molecular methods. In addition, they work on other topics, such as ecosystem dynamics (nutrients, energetics), ecotoxicology (exposure and hazard assessment), and symbioses.

Selected Publications:

- Jenkins, DG and D Rinne. 2008. Red herring or low illumination? The peninsula effect revisited. *J. Biogeography*. 35:2128-2137.
- Alemadi, SD and DG Jenkins. 2008. Behavioral constraints for the spread of the eastern mosquitofish, *Gambusia holbrooki* (Poeciliidae). *Biological Invasions* 10:59-66.
- Lemke, MJ, DG Jenkins, J Bartletti, and T Goode. 2007. Comparison of nitrogen and bacterial dynamics in Spunky Bottoms and LaGrange floodplain wetlands. In: Heske, EJ, JR Herkert, KD Blodgett, and AM Lemke, editors. *Spunky Bottoms: restoration of a big-river floodplain*. Proceedings of the Spunky Bottoms Restoration Symposium, May 2003. INHS Special Publication 29, Champaign, IL. pgs. 12-14.
- Jenkins, DG, CR Brescacin, CV Duxbury, JA Elliott, JA Evans, KR Grablow, M Hillegass, BN Lyon, GA Metzger, ML Olandese, D Pepe, GA Silvers, HN Suresch, TN Thompson, CM Trexler, GE Williams, NC Williams and SE Williams. 2007. Does size matter for dispersal distance? *Global Ecology and Biogeography* 16:415-425.
- Jenkins, DG. 2007. A critical analysis of Illinois' fish mercury monitoring program, 1974-1998. *Environ. Monit. Assess.* 131:177-184.

- Jenkins, DG. 2006. In search of quorum effects in metacommunity structure: species co-occurrence analyses. *Ecology* 87:1523–1531.
- Jenkins, DG and LA McCauley. 2006. GIS, SINKS, FILL, and disappearing small wetlands: a case study of unintended consequences in algorithmic development. *Proceedings of the 2006 ACM Symposium on Applied Computing*.
- McCauley, LA and DG Jenkins. 2005. GIS-based estimates of former and current depressional wetlands in an agricultural landscape. *Ecological Applications* 15:1199-1208.
- Bohonak, A. and DG Jenkins. 2003. Ecological and evolutionary significance of dispersal by freshwater aquatic invertebrates. *Ecology Letters* 6:783-796.
- Jenkins, DG, S Grissom, K Miller. 2003. Consequences of prairie wetland drainage for crustacean biodiversity and metapopulations. *Conservation Biology* 17:158-167.

MORRISON-SHETLAR, ALLISON

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Dr. Morrison-Shetlar is Dean of Undergraduate Studies at UCF and her research has been primarily in two areas, one in the field of marine molecular biology, the other science education. For the last seventeen years I have been active in the study of membrane transport, initially with sodium-glucose cotransporters and more recently with sodium-hydrogen transporters. Her areas of expertise are in the molecular, biochemical and immunological study of marine organisms such as the dogfish shark (*Squalus acanthias*), the mummichog (*Fundulus heteroclitus*), and the long-horned sculpin (*Myoxocephalus octodecimspinosus*). Using physiological, molecular and biochemical techniques her lab has been able to clone, sequence and compare isoforms of the sodium-hydrogen transport protein, generate antibodies to the proteins, and locate the protein in gill tissue using immunohistochemistry. Most of this research has taken place in the summer months at Mount Desert Island Biological Laboratory in Maine.

As a teacher she is interested in how students learn, what teaching methods work best in which learning environment, and how to create an effect learning experience for all students. Over the last seven years her research has led to considering a wide variety of teaching strategies that have implemented in her classroom and assessed in terms of student learning. The results of this research led to the publication of a book on teaching strategies and presentations and consultations nationwide.

Selected Publications:

- Regassa, L.B. and Morrison-Shetlar A.I. Student Learning in a Project-Based Molecular Biology Course. *Journal of College Science Teaching*. *In press* 2009.
- Claiborne, J.B., Choe, K.P., Morrison-Shetlar, A.I., Weakley, J.C. Havird, J., Freiji, A., Evans, D.H., and Edwards, S.L. Molecular detection and immunological localization of gill Na/H exchanger in the dogfish (*Squalus acanthias*). *Am J Physiol Regul Integr Comp Physiol* 294: R1092-R1102, 2008.
- Regassa, L.B. and Morrison-Shetlar, A.I. Designing and Implementing a Hands-On, Inquiry-Based Molecular Biology Course. *Journal of College Science Teaching*. 36(6):36-41, 2007.
- Edwards, S. L. Wall, B.P., Morrison-Shetlar, A.I., Sligh, S., Weakly, J.W., and Claiborne, J.B. The Effect of Environmental Hypercapnia and Salinity on the Expression of NHE-Like Isoforms in the Gills of a Euryhaline Fish (*Fundulus heteroclitus*). *Journal of Experimental Zoology* 303A:464-475, 2005.
- Morrison-Shetlar, A.I. and Hohenleitner, K. Investing in Faculty at Every Career Stage. In: *What works, what matters, what lasts?* 4: 5 – 10, 2004.
- Choe, K. P., Morrison-Shetlar, A. I., Wall, B. P. and Claiborne, J. B. (2002). *Immunological Detection of Na⁺/H⁺ exchangers in the gills of a hagfish, Myxine glutinosa, an elasmobranch, Raja erinacea, and a teleost, Fundulus heteroclitus*. *Comp. Biochem. Physiol.* 131, 375-385.
- Claiborne, J.B., Edwards, S.L., and Morrison-Shetlar, A.I. Acid-base regulation in fishes: Cellular and molecular mechanisms. *Journal of Experimental Zoology*. - 293:302-319, 2002.

Morrison-Shetlar, A., Edwards, S. and Claiborne, J.B. Molecular identification and cloning of an NHE-2 like isoform from the gills of the dogfish shark (*Squalus acanthias*). *Bull. Mt. Desert Is. Biol. Lab.* 41,11, 2002.
Battles, D.A., Franks, G., Morrison-Shetlar A.I., Orvis, J. and Rich, F. Development of an Undergraduate Environmental Science Program. *Journal of College Science Teaching*.

NOSS, REED F. (Davis-Shine Professor of Conservation Biology)

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The focus of Dr. Noss' research program for the last two decades has been on systematic conservation planning at regional to continental scales. He has designed and directed such studies in Florida, the Pacific Northwest, California, the Rocky Mountains, and several regions of Canada, and has been an advisor to similar projects throughout North America and parts of Latin America and Europe. This work seeks to identify areas requiring protection from development and to devise management policies, approaches, and techniques that will maintain the biodiversity and ecological values of these areas and entire landscapes over time. Such planning focuses on several levels of biological organization, depending on available data, and includes field research and population modeling of imperiled taxa and other focal species. Predictions from ecological theory and population models can be used to test the ability of alternative reserve designs and management practices to maintain populations of focal species over time. Through an iterative process of testing maps against data and predictions from models, preliminary designs can be refined into scientifically defensible networks. Dr. Noss and his students have pioneered methods of integrating population viability analysis into reserve selection algorithms. His current research program is increasingly interdisciplinary and includes work on fire ecology, forest and grassland restoration and management, the Florida Grasshopper Sparrow and its dry prairie habitat, Florida Scrub-Jays, and the Florida Panther. An emerging theme is the responses of species (especially vertebrates) and ecological processes to environmental conditions along urban-wildland gradients. Road ecology (e.g., responses of wildlife to roads and the design of wildlife crossings and barriers to minimize impacts) and movement ecology (e.g., corridors and connectivity) figure prominently in this research theme.

Selected Publications:

- Noss, R.F., K. Vance-Borland, and S. Nielsen. 2009. Prioritizing ecosystems, species, and sites for restoration. Chapter 12 in A. Moilanen, H. Possingham, and K. Wilson, editors. *Spatial Conservation Prioritisation: Quantitative Methods and Computational Tools*. Oxford University Press, Oxford, U.K.
- Noss, R.F., E. Fleishman, D.A. DellaSala, J.M. Fitzgerald, M. Gross, M.B. Main, F. Nagle, S. O'Malley, J. Rosales. 2009. Priorities for improving the scientific foundation of conservation policy in North America. *Conservation Biology* 23:xx-xx.
- Prather, J., R.F. Noss, and T.D. Sisk. 2008. Real vs. perceived conflicts between restoration of ponderosa pine forests and conservation of the Mexican Spotted Owl. *Forest Policy and Economics* 10:140-150.
- Noss, R.F. 2007. Values are a good thing in conservation biology. *Conservation Biology* 21:18-20.
- Fazey, I., J. A. Fazey, J. Fischer, K. Sherren, J. Warren, R.F. Noss, and S.R. Dovers. 2007. Adaptive capacity and learning to learn as leverage for social-ecological resilience. *Frontiers in Ecology and the Environment* 5:375-380.
- Noss, R.F., J.F. Franklin, W.L. Baker, T. Schoennagel, and P.B. Moyle. 2006. Managing fire-prone forests in the western United States. *Frontiers in Ecology and the Environment* 4:481-487.
- Fleishman, E., R.F. Noss, and B.R. Noon. 2006. The utility and limitations of species richness metrics in conservation. *Ecological Indicators* 6:543-553.
- Noss, R.F., P. Beier, W.W. Covington, R.E. Grumbine, D.B. Lindenmayer, J.W. Prather, F. Schmiegelow, T.D. Sisk, and D.J. Vosick. 2006. Integrating restoration ecology and conservation biology: a case study from ponderosa pine forests of the southwestern USA. *Restoration Ecology* 14:4-10.

- Meretsky, V.J., R.L. Fischman, J.R. Karr, D. Ashe, J.M. Scott, R.F. Noss, and R. Schroeder. 2006. New directions in conservation for the National Wildlife Refuge system. *BioScience* 56:135-143.
- Meine, C., M. Soulé, and R.F. Noss. 2006. "A mission-driven discipline": the growth of conservation biology. *Conservation Biology* 20:631-651

PARKINSON, CHRISTOPHER L.

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Dr. Parkinson's research program focuses on understanding, describing and conserving the World's biodiversity, both at the organismal and molecular levels. The foundation of his research lies in molecular phylogenetics thereby using genetic material (DNA) to hypothesize the evolutionary history of organisms or gene sequences. He then tries to infer which historical and/or current forces may have led to the organisms present day behavior, distribution, diversity, and ecology. The secondary area of his research program is conservation genetics, which uses genetics to investigate population level processes within threatened and endangered taxa. By utilizing the genetic data, we are able to suggest holistic management strategies to increase a species chance for survival.

Selected Publications:

- Fenwick, A., R.L. Gutberlet, J.A. Evans, and C.L. Parkinson. In press. Morphological and molecular evidence for phylogeny and classification of South American pitvipers, genera *Bothrops*, *Bothriopsis*, and *Bothrocophias* (Serpentes: Viperidae). Accepted in the *Zoological Journal of the Linnean Society*.
- Castoe, T.A., Daza, J.M., Smith, E.N. Sasa, M.M., Kuch, U., Campbell, J.A., Chippindale, P.T. and C.L. Parkinson. 2009. Comparative Phylogeography of Pitvipers Suggests a Consensus of Ancient Middle American Highland Biogeography. *Journal of Biogeography* 36: 88–103. Cover of the Journal article.
- Castoe, T.A., E.N. Smith, R.M. Brown, and C.L. Parkinson. 2007. Higher-level phylogeny of Asian and American coralsnakes, their placement within the Elapidae (Squamata), and the systematic affinities of the enigmatic Asian coralsnake *Hemibungarus calligaster*. *Zoological Journal of the Linnean Society* 151:809-831
- Degner, J.F., I.J. Stout, J.D. Roth, and C. L. Parkinson. 2007. Population Genetics and Conservation of the Threatened Southeastern Beach Mouse (*Peromyscus polionotus niveiventris*): Subspecies and Evolutionary Units. *Conservation Genetics* 8:1441–1452.
- Zhijie J., A. T.A. Castoe, M.D. Herron, F. Burbrink, C. Austin, J. McGuire, C. L. Parkinson, and D.D. Pollock. 2007. Comparative Mitochondrial Genomics of Snakes and Genetic Consequences of the Duplicate Control Region. *BMC Evolutionary Biology* 7:123.
- Castoe, T.A., C.L. Spencer, and C. L. Parkinson. 2007. Phylogeographic Structure and Historical Demography of the Western Diamondback Rattlesnake (*Crotalus atrox*): a Perspective on North American Desert Biogeography. *Molecular Phylogenetics and Evolution*. 43:193-212.
- Castoe, T.A., and C.L. Parkinson. 2006. Bayesian Mixed Models and the Phylogeny of Pitvipers (Viperidae: Serpentes). *Molecular Phylogenetics and Evolution* 39:91–110.
- Reece, J.S., L.M. Ehrhart, C.L. Parkinson. 2006. Mixed Stock Analysis of Juvenile Loggerhead Turtles in the Indian River Lagoon and Implications for Marine Turtle Conservation Planning. *Conservation Genetics* 7:345-352.
- Parkinson, C.L. J.P. Mower, Y-L. Qiu, A.J. Shirk, K Song, N.D. Young, C.W. dePamphilis and J.D. Palmer. 2005. Multiple Major Increases and Decreases in Mitochondrial Substitution Rates in the Plant Family Geraniaceae. *BMC Evolutionary Biology* 5:73
- Wiens, J.J., J.W. Fetzner, C.L. Parkinson, and T.W. Reeder. 2005. Hylid Frog Phylogeny and Sampling Strategies for Speciose Clades. *Systematic Biology*. 54:719–748.

QUIGLEY, MARTIN

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Urban Landscape Ecology is a new discipline, a hybrid of basic systems ecology, regional land planning, and site-specific landscape design, all based on an explicit recognition that humans inevitably alter and re-construct their environments at every level. The themes of my research, as expressed not only in my refereed publications and public presentations, but also in my design

projects, are the planning of sustainable landscapes that are both ecologically sound and aesthetically appropriate. I am both a scientist and a landscape architect. Landscape architecture is far more than garden design-it is the shaping of the land for optimum human use; in this context, the horticultural aspects of landscape installation are secondary to the function of the site or area under construction. Similarly, ecology is more than the study of biotic and abiotic factors of natural (non-human) systems-it must include the impacts, needs and desires of human populations. The shift from classical ecology, which typically excluded human influence from study, is very recent. My current research focus is vertical complexity in the constructed landscape. The underlying concept is that an installed landscape that most resembles an ecologically balanced plant community will be the most sustainable, with the fewest required mechanical or chemical inputs. My goal is an academic identity that promotes both aesthetically satisfying and ecologically appropriate landscape design and management.

Selected Publications:

- Zahreddine, H.G., D.J. Barker, M.F. Quigley, K. Sleem and D.K. Struve. 2007. Patterns of woody plant species diversity in Lebanon as affected by climatic and soil properties. *Lebanese Science Journal* 8:21-33.
- Caldwell, H. K. Mancl and M.F. Quigley. 2007. The effect of year-round irrigation on landscape plant quality and health in Ohio. *Ohio Journal of Science* 107:77-81.
- Kuzovkina, Y.A. and M.F. Quigley. 2006. Willows beyond wetlands: uses of *Salix* L. species for environmental projects. *Water, Air and Soil Pollution* 18:183-204.
- Martin, J.F., E. Hofherr, and M.F. Quigley. 2004. Effects of macrophyte transpiration and harvesting on nitrate concentrations in surface water of wetland microcosms. *Wetlands* 23:
- Kuzovkina, Y.A. and M.F. Quigley. 2004. Willows beyond wetlands: uses of *Salix* L. species for environmental projects. *Water, Air and Soil Pollution*.
- Zahreddine, H.G., D.K. Struve, and M.F. Quigley. 2004. Growing *Pinus nigra* seedlings in Spinout-treated containers reduces root malformation and increases growth after transplanting. *Journal of Environmental Horticulture* 22:176-182.
- Holland, J., J. Martin, T. Granata, V. Bouchard, M.F. Quigley and L. Brown. 2005. Effects of wetland depth and flow rate on residence time distribution characteristics. *Ecological Engineering* .
- Holland, J., J. Martin, T. Granata, V. Bouchard, M.F. Quigley and L. Brown. 2004. Analysis and modeling of suspended solids from high-frequency monitoring of a stormwater treatment wetland. *Ecological Engineering*
- Kuzovkina Y.A., M.F. Quigley, and M. Knee M. 2004. Cadmium and copper uptake and translocation by five willow (*Salix* L.) species. *International Journal of Phytoremediation* 6(3):269-287.
- Kuzovkina Y.A., M.F. Quigley and M. Knee. 2004. Soil compaction and flooding effects on the growth of twelve willow (*Salix* L.) species. *Journal of Environmental Horticulture*
- Kunkel, B.A., P.S.Grewal, and M.F.Quigley. 2004. A mechanism of acquired resistance against and entomopathogenic nematode by *Agrostis ipsilon* feeding on perennial ryegrass harboring a fungal endophyte. *Biological Control* 29(1):100-108.

QUINTANA-ASCENCIO, PEDRO F.

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Dr. Quintana-Ascencio's main academic interest has been the interactive role of disturbance and spatial structure on plant community and population dynamics. During the last decade, he has analyzed the population viability of several rare plant species endemic to the Lake Wales Ridge in central Florida and, because of the prominent role of fire in this ecosystem, he has emphasized population dynamics in relation to fire. To reach these goals, he combines long-term data collection, short-term studies, field experiments and modeling. He also works to understand community change with slash-and-burn agriculture in lowland tropical rain forests and highland pine-oak forests in southern Mexico. Recently, he initiated research to assess the synergistic

effects of grazing and fire on species diversity of Florida wetlands. These efforts will provide opportunities to study basic biology, colonization dynamics, and restoration techniques.

Selected Publications:

- Quintana-Ascencio, P.F., M. J. Albert, I. Caballero, J. M. Olano, and A. Escudero. 2009. Does habitat structure matter? Spatially explicit population modeling of an Iberian gypsum endemic. *Population Ecology* In press.
- Knickerbocker, C.M., Leitholf, S., Stephens, E.L., Keellings, D. J., Laird, H., Anderson, C.J.R., Fauth, J. E., and P.F. Quintana-Ascencio. 2009. Tree encroachment of a sawgrass (*Cladium jamaicense*) marsh within an increasingly urbanized ecosystem. *Natural Areas Journal* 29:15-26.
- Picó F.X., Quintana-Ascencio, P. F., Mildén M., Ehrlén J., and Pfingsten, I. Modeling the effects of genetics and habitat on the demography of a grassland herb. *Basic and Applied Ecology* In press.
- Dolan, R. W., Quintana-Ascencio, P. F., and Menges, E. S. 2008. Genetic change following fire in a population of a seed-banking perennial plant. *Oecologia* 158:355-360
- Glardon C.G., Walters L. J., Quintana-Ascencio, P. F., McCauley, L. A., Stam, W. T. and Olsen, J. L. 2008. Predicting risks of invasion of macroalgae in the genus *Caulerpa* in Florida. *Biological Invasions* 10: 1147-1157.
- Weekley, C.W, E. S. Menges, and P. F. Quintana-Ascencio. 2007. Seedling emergence and survival of *Warea carteri* (Brassicaceae), an endangered annual herb of the Florida Scrub. *Canadian Journal of Botany* 85: 621-628.
- Edwards, C.E., M Arakaki, P.F. Quintana-Ascencio, D.E. Soltis, and P.S. Soltis. 2007. Isolation and characterization of microsatellite loci from the endangered scrub *Hypericum* (*Hypericum cumulicola*). *Molecular Ecology Notes* doi:10.1111/j.1471-8286.2007.01808.x.
- Trapnell, D. W., Schmidt, J. P., Quintana-Ascencio, P. F. and Hamrick, J. L. 2007. Genetic diversity and biogeography of the southeastern endemic, *Ceratiola ericoides* (Empetraceae). *Journal of Heredity* 98: 587-593.
- Weekley, C. W., D. Gagnon, E. S. Menges, P. F. Quintana-Ascencio and S. Saha. 2007. Soil moisture in relation to vegetation, gaps, and time since fire in Florida scrub. *EcoScience* 14: 377-386.
- Quintana-Ascencio, P.F., Weekley, C., and E. S. Menges. 2007. Comparative demography of a rare species in Florida scrub and road habitats. *Biological Conservation* 137:263-270.
- Boughton, E.A.; Quintana-Ascencio, P.F.; Menges, E.S. and Boughton, R.K. 2006. Association of ecotones with relative elevation and fire in an upland Florida landscape. *Journal of Vegetation Science*. 17: 361-368
- Maschinski, J., J. E. Baggs. P. F. Quintana-Ascencio and E. S. Menges. 2006. Using population viability analysis to predict the effects of climate change on the extinction risk of an endangered limestone endemic shrub, Arizona cliffrose. *Conservation Biology*. 20: 218-228.
- Menges, E.S., P.F. Quintana-Ascencio, C.W. Weekley, and O.G. Gaoué. 2006. Population viability analysis and fire return intervals for an endemic Florida scrub mint. *Biological Conservation* 127: 115-127

STERN, MICHAEL J.

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I am interested in biological and computational approaches to understanding developmental biology. My biological interests have focused on the signaling mechanisms involved in cell migration guidance and fibroblast growth factor (FGF) signal transduction. My laboratory has used molecular-genetic approaches to study the cell migrations of the sex myoblasts and FGF signaling in the nematode *Caenorhabditis elegans*. My computational interests lie in developing modeling methodologies to represent biological systems, with the goal of enhancing our understanding of these systems via the formalization and integration of the increasingly complex array of available biological data.

Selected Publications:

- Sadot, A., Fisher, J., Barak, D., Admanit, Y., Stern, M.J., Hubbard, E.J.A. and Harel, D. (2008). Towards Verified Biological Models. *IEEE/ACM Transactions on Computational Biology and Bioinformatics* 5:223-234.
- Lo, T. W., Branda, C. S., Huang, P., Sasson, I. E., Goodman, S. J., and Stern, M. J. (2008). Different isoforms of the *C. elegans* FGF receptor are required for attraction and repulsion of the migrating sex myoblasts. *Dev. Biol.* 318:268-275.

- Kam N, Kugler H, Marelly R, Appleby L, Fisher J, Pnueli A, Harel D, Stern MJ, Hubbard EJ. (2008). A scenario-based approach to modeling development: a prototype model of *C. elegans* vulval fate specification. *Dev Biol.* 323: 1-5.
- Huang, P. and Stern, M. J. (2005). FGF signaling in flies and worms: more and more relevant to vertebrate biology. *Cytokine Growth Factor Rev* 16: 151-158.
- Fisher, J., Piterman, N., Hubbard, E.J.A., Stern, M.J., and Harel, D. (2005). Computational insights into *Caenorhabditis elegans* vulval development. *Proc Natl Acad Sci USA* 102: 1951-1956.
- Goodman, S.J., Branda, C.S., Robinson, M.K., Burdine, R.D. and Stern, M.J. (2003) Alternative splicing affecting a novel domain in the *C. elegans* EGL-15 FGF receptor confers functional specificity. *Development* 130:3757-3766.
- Borland, C.Z., Schutzman, J.L. and Stern, M.J. (2001) FGF signaling in the nematode *Caenorhabditis elegans*. *BioEssays* 23:1120-1130.
- Chen, E.B. and Stern, M.J. (1998) Understanding cell migration guidance: lessons from sex myoblast migration in *C. elegans*. *Trends Genet.* 14, 322-327.

STOUT, I. JACK

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Emeritus Professor Stout's program is interested in population and community-level phenomena in ecosystems of peninsular Florida. His work with small mammals has focused on community structure, dispersal strategies, and habitat selection and the effects of habitat fragmentation on the biota of sand pine scrub and sandhill communities continues to be examined. Other research concerns long-term studies of the pigmy fringe tree, scrub lupine, and the gopher tortoise. Recent work has focused on forested fresh water wetlands, fire ecology, endangered plants, beach mice, and the Florida scrub jay.

Selected Publications:

- Leonard, D.L. and I.J. Stout. 2006. Woodpecker use of forested wetlands in central peninsular Florida. *Southeastern Naturalist*.
- DeLorme, D.E., S.C. Hagen, I.J. Stout. 2005. Perspectives on prescribed burning: issues and directions for developing campaign messages. Pages 99-114 in *The Environmental Communication Yearbook*, Vol. 2. S.L. Senecah, editor. Lawrence Erlbaum Associates, Publishers, Mahwah, NJ.
- DeLorme, D.E., S.C. Hagen, I.J. Stout. 2003. Consumers' perspectives on water issues: directions for educational campaigns. *J. Environ. Ed.* 34:28-35.
- Stout, I.J. 2001. Rare plants of the Florida scrub. *Natural Areas Journal* 21:50-60.
- Beckage, B. and I.J. Stout. 2000. The effects of repeated burning on species richness in Florida pine savanna: a test of the intermediate disturbance hypothesis. *J. Vegetation Science* 11:113-122.
- Buchanan, K.S., A.M. Bard, and I.J. Stout. 1999. A comparison of techniques for restoring sandhill understory species on abandoned agricultural land (Florida). *Ecological Restoration* 17: 235-237.
- Corey, D.T., I.J. Stout, and G.B. Edwards. 1998. Ground surface spider fauna in Florida sandhill communities. *J. Arachnology* 26: 303-316.
- Lobinske, R.J., A. Ali, and I.J. Stout. 1997. Benthic macroinvertebrates and selected physico-chemical parameters in two tributaries of the Wekiva River, central Florida, USA. *Med. Entomol. Zool.* 48: 219-231.
- Stout, I.J., and W.R. Marion. 1993. Pine Flatwoods and Xeric Pine Forests of the Southern (lower) Coastal Plain. Chapter 9 *In Biodiversity of the Southeastern United States/Lowland Terrestrial Communities.* (W.H. Martin et al., editors). John Wiley and Sons, Inc., New York, NY.
- Stout, I.J. 1992. *Peromyscus polionotus niveiventris*, pages 242-249, *In Rare and Endangered Biota of Florida*, Volume I Mammals. 2nd ed. (S.R. Humphrey, editor). Univ. Press of Florida.

VON HOLLE, BETSY

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Dr. Von Holle is interested in the landscape patterns and community mechanisms that influence the addition of species into ecosystems. Her research interests span four related themes: 1) the

investigation of ecosystem and anthropogenic factors that influence invasion by nonnative species, 2) understanding changes in ecosystem function as a result of ecological restoration, 3) the characterization of the impact and type of species to invade natural areas, and 4) economic impacts and policy implications of nonnative species invasions. Her research approaches have included landscape-scale quantification of environmental and land-use history parameters paired with experimental manipulations of natural communities, restoration experiments, greenhouse experiments, meta-analyses of global patterns of invasion, literature reviews, and spatial and null models. She employs multi-scale techniques, where she determines landscape-level influences on nonnative species demography and further investigates these influential factors with patch-scale community manipulations and analyses. Her interest in landscape preservation is served by utilizing a variety of methods to answer pressing questions relating to the addition and loss of species in ecosystems.

Selected Publications:

- Holmes, T.P., J.E. Aukema, B. Von Holle, A. Liebhold, E. Sills. *In press*. Economic Impacts of Invasive Species in Forests: Past, Present, and Future. Invited Chapter: *The Year in Ecology and Conservation Biology*, Edited by R.S. Ostfield and W.H. Schlesinger
- Niemiera, A.X., and B. Von Holle. *In press*. Invasive Plant Species and the Ornamental Horticulture Industry. *Control of Invasive Plants*, Book edited by Inderjit and published by Springer
- Reaser, J., L. Meyerson, and B. Von Holle. 2008. Saving camels from straws: How propagule pressure-based prevention policies can reduce the risk of unintentional introductions. *Biological Invasions* 10:1085-1098.
- Von Holle, B. and G. Motzkin. 2007. Historical land use and environmental determinants of nonnative plant distribution in coastal northeastern United States. *Biological Conservation* 136: 33-43.
- Neill, C.M., B. Von Holle, K. Kleese, K. D. Ivy, A. R. Collins, and C. Treat. 2007. Effects of land-use history on soil quality and vegetation: Implications for sandplain grassland restoration. *Biological Conservation* 136:17-32.
- Mack, R.N., Von Holle B., Meyerson, L.A. 2007. Assessing the impacts of invasive alien species across multiple spatial scales: the need to work globally and locally. *Frontiers in Ecology and Evolution* 5(4):217-220.
- Fridley, J. D., Stachowicz, J.J., Naeem, S., Sax, D.F., Seabloom, E.W., Smith, M.D., Stohlgren, T.J., Tilman, D., and Von Holle, B. 2007. The invasion paradox: Reconciling pattern and process in species invasions. *Ecology* 88(1): 3-17.
- Niemiera, A.X. and B. Von Holle. 2007. Invasive Plants – A Horticultural Perspective. Virginia Cooperative Extension, publication 426-080. Virginia Polytechnic Institute and State University, Blacksburg, VA. 6pp.
- Von Holle, B., K.A Joseph, E.F. Largay, and R.G. Lohnes. 2006. Facilitations between the introduced nitrogen-fixing tree, *Robinia pseudoacacia*, and nonnative plant species in the glacial outwash upland ecosystem of Cape Cod, MA. *Biodiversity and Conservation* 15:2197–2215
- Von Holle, B. and D. Simberloff. 2005. Ecological resistance to biological invasion overwhelmed by propagule pressure. *Ecology* 86(12):3213-3218.

VON KALM, LAURENCE H.

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Dr. von Kalm's laboratory pursues three main areas of interest. First, they study epithelial morphogenesis in *Drosophila* imaginal discs. They are particularly interested to understand the coordination action of steroid hormones and intracellular signaling pathways in this process. A second project focuses on the biology of polyamine transport in *Drosophila* epithelia. This is a collaborative project with the Phanstiel laboratory in Chemistry. Their major objective is to identify a polyamine transporter, with the goal of using the sophisticated genetic approaches available in *Drosophila* to study transporter structure and function. These studies will help with the identification and characterization of a human polyamine transporter, and the development of anti-neoplastic drugs that target the transporter. A third project, conducted in collaboration with

the Jenkins laboratory in the Department of Biology, investigates a possible role for *Wolbachia* in the reproductive life cycle of *Daphnia*. These studies have implications for the Ecology and Molecular Biology of host-parasite interactions, and the evolution of reproductive strategies.

Selected Publications:

- Tsen, C., Iltis, M., Kaur, N., Bayer, C.A., Delcros, J-G., von Kalm, L. and O. Phanstiel (2008) A Drosophila Model To Identify Polyamine-Drug Conjugates That Target the Polyamine Transporter in an Intact Epithelium. *J. Med. Chem.* 51, 324-330
- Bayer, C.A., Halsell, S.R., Fristrom, J.W., Kiehart, D.P. and L. von Kalm (2003) Genetic Interactions Between the RhoA and Stubble-stubloid Loci Suggest a Role for a Type II Transmembrane Serine Protease in Intracellular Signaling During Drosophila Imaginal Disc Morphogenesis. *Genetics* 165, 1417-1432.
- Bayer, C.A., Zhou, X., Zhou, B., Riddiford, L.M. and L. von Kalm (2003) Evolution of the Drosophila broad locus: The *Manduca sexta* broad Z4 isoform has biological activity in Drosophila. *Development Genes and Evolution* 213, 471-476.
- Cai, X., G. McGraw, J.V. Pattisapu, L. von Kalm, S. Willingham, D. Socci and J. S. Gibson (2000) Hydrocephalus in the H-Tx Rat: A Monogenic Disease? *Exp. Neurology* 163, 131-135.
- Wojtas, K., N. Slepecky, L. von Kalm and D. Sullivan (1997) Flight muscle function in Drosophila requires co-localization of glycolytic enzymes. *Mol. Biol. Cell.* 8,1165-1675.
- Bayer, C.A., L. von Kalm and J.W. Fristrom (1997) Relationships between protein isoforms and genetic functions demonstrate functional redundancy at the Broad-Complex during Drosophila metamorphosis. *Developmental Biology* 187, 267-282.
- Bayer, C.A., L. von Kalm and J.W. Fristrom (1996) Gene regulation in imaginal disc and salivary gland development during Drosophila metamorphosis. In "Metamorphosis: Post-Embryonic Reprogramming of Gene Expression in Amphibian and Insect Cells." L.I. Gilbert, B.G. Atkinson, J.R. Tata (eds.) Academic Press: pp. 321-361.
- von Kalm, L., D. Fristrom and J.W. Fristrom (1995) The making of a fly leg: A model for epithelial morphogenesis. *BioEssays* 17, 693-702.
- Hodgetts, R.B., W.C. Clark, S.L. O'Keefe, M. Schouls, K. Crossgrove, G.M. Guild and von Kalm, L. (1995) Hormonal induction of Dopa decarboxylase in the epidermis of Drosophila is mediated by the Broad-Complex. *Development* 121, 3913-3922.
- von Kalm, L., K. Crossgrove, D. Von Seggern, G.M. Guild and S.K. Beckendorf (1994) The Broad-Complex directly controls a tissue-specific response to the steroid hormone ecdysone at the onset of Drosophila metamorphosis. *The EMBO Journal* 13, 3505-3516.

WALTERS, LINDA J.

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Dr. Walters' research focuses on human impacts in the marine environment. She is interested in both pure ecology questions and goal-based conservation issues for a wide range of marine and estuarine habitats in the Caribbean and the southeastern US, especially the Indian River Lagoon system (IRL) and the Florida Keys. In the IRL, her program focuses on understanding interactions among organisms on intertidal oyster reefs (including invasive barnacles and mussels), as well as looking at the impacts of recreational boat wakes on the recent declines of these reefs. They are collaborating with The Nature Conservancy on community-based restoration of this critical habitat. Other on-going research in the IRL includes studies on mangroves and salt marsh plants, boat propeller scar impacts on seagrass beds, and dispersal and allelopathic impacts of invasive Brazilian pepper on native flora. Additional research in her lab on invasive species has targeted dispersal of one of the world's 100 worst invasive species, *Caulerpa taxifolia*, via e-commerce and retail shops. Outreach to the aquarium industry is currently underway with colleagues from CA Sea Grant. In the Florida Keys, Bahamas and Virgin Islands, she has been collaborating with many scientists to better understand how increases in abundances of certain species of macroalgae significantly reduces recruitment and

survival of hard corals and how the return of the long-spined sea urchin *Diadema antillarum* may change this pattern.

Selected Publications:

- Walters, L. 2009. Ecology and management of the invasive marine macroalga *Caulerpa taxifolia*. Chapter in "Management of Invasive Weeds". Editor: Inderjit; Publisher: Springer. 364 p.
- Boudreaux, M., Walters, L. and D. Rittschof. 2009. Interactions between native and non-native barnacles and the eastern oyster *Crassostrea virginica*. *Bulletin of Marine Science* 84:43-57.
- Donnelly, M. and L. Walters. 2008. Water and boating activity as dispersal vectors for *Schinus terebinthifolius* (Brazilian Pepper) seeds in freshwater and estuarine habitats. *Estuaries and Coasts* 31:960-968.
- Glardon, C., Walters, L., Quintana, P., Stam, W., McCauley, L., and J. Olsen. 2008. Predicting risks of invasion of *Caulerpa* species in Florida. *Biological Invasions* 10:1147-1157.
- Donnelly, M., Greene, D., and L. Walters. 2008. Allelopathic effects of fruits of the Brazilian pepper *Schinus terebinthifolius* on growth, leaf production and biomass of seedlings of the red mangrove *Rhizophora mangle* and the black mangrove *Avicennia germinans*. *Journal of Experimental Marine Biology and Ecology* 357:149-156.
- Stiner, J. and L. Walters. 2008. Predation on intertidal oyster reefs impacted by recreational boating. *Florida Scientist* 71:31-44.
- Walters, L., Sacks, P., Bobo, Y., Richardson, D., and L. Coen. 2007. Impact of hurricanes on intertidal oyster reefs in Florida: Reef profiles and disease prevalence. *Florida Scientist* 70:506-521.
- Walters, L., Brown, K., Stam, W. and J. Olsen. 2006. E-Commerce and *Caulerpa*, Unregulated dispersal of invasive species. *Frontiers in Ecology and the Environment* 4:75-79.
- Boudreaux, M. and L. Walters. 2006. *Mytella charruana*: A new, invasive bivalve in Mosquito Lagoon, Florida. *The Nautilus* 120:34-36.
- Kuffner, I., Walters, L., Becerro, M., Paul, V., Ritson-Williams, R., and K. Beach. 2006. The role of weedy primary producers in perpetuating the degraded state of coral reefs in the Florida Keys. *Marine Ecology Progress Series* 323:107-117.

WEISHAMPEL, JOHN F.

email: jweisham@mail.ucf.edu

Dr. Weishampel's primary research interest is in the field of landscape ecology, i.e., how landscape pattern influences ecological processes and biodiversity. Using simulation models coupled with field observations, he explores how the interplay between abiotic conditions (e.g., habitat structure, natural and anthropogenic disturbance regimes) and biotic processes (e.g., competition, dispersal, growth, succession) governs the behavior of plants and animals at landscape scales. One emphasis of his research is to use models, interfaced with remote sensing (from satellite and airborne instruments) and geographic information systems (GIS), to explore spatial properties of ecological systems to better understand compositional, structural, and functional biodiversity in terrestrial, freshwater, and marine systems.

Selected Publications:

- Hannan, L., J. Roth, L.M. Ehrhart, and J.F. Weishampel. 2007. Dune vegetation fertilization by nesting sea turtles. *Ecology* 88: 1053-1058.
- Weishampel, J.F., J.B. Drake, A. Cooper, J.B. Blair, and M. Hofton. 2007. Forest canopy recovery from the 1938 hurricane and subsequent salvage damage measured with airborne LiDAR. *Remote Sensing of Environment* 190: 142-153.
- Kirkpatrick, L. and J.F. Weishampel. 2005. Quantifying spatial structure in volumetric neutral models. *Ecological Modelling* 186: 312-325.
- Husk, G.J., J.F. Weishampel, and W.H. Schlesinger. 2004. Mineral dynamics in Spanish moss, *Tillandsia sneoides* L. (Bromeliaceae) from Central Florida, USA. *Science of the Total Environment* 321: 165-172.
- Weishampel, J.F. D.A. Bagley, and L.M. Ehrhart. 2004. Earlier nesting by loggerhead sea turtles following sea surface warming. *Global Change Biology*. 10: 1425-1428.

- Boutet, J.C. and J.F. Weishampel. 2003. Spatial pattern analysis of pre- and post-hurricane forest canopy structure in North Carolina, USA. *Landscape Ecology* 18: 553-559.
- Weishampel, J.F., D.A. Bagley, L.M. Ehrhart, and B.L. Rodenbeck. 2003. Spatiotemporal patterns of annual sea turtle nesting behaviors along an East Central Florida beach. *Biological Conservation* 110: 295-303.
- Drake, J.B., R.O. Dubayah, D.B. Clark, R.G. Knox, J.B. Blair, M.A. Hofton, R.L. Chazdon, J.F. Weishampel, and S. Prince. 2002. Estimation of tropical forest structural characteristics using large-footprint lidar. *Remote Sensing of Environment* 79: 305-319.
- Drake, J.B. and J.F. Weishampel. 2001. Simulating vertical and horizontal multifractal patterns of a longleaf pine savanna. *Ecological Modeling* 145: 129-142.
- Weishampel, J.F., J.R. Godin, and G.M. Henebry. 2001. Pantropical dynamics of 'intact' rain forest canopy texture. *Global Ecology and Biogeography* 10: 389-398.

WORTHY, GRAHAM A. J. (Hubbs Professor of Marine Mammalogy)

email: gworthy@mail.ucf.edu

Dr. Worthy is the Graduate Coordinator. The ultimate goal of his Physiological Ecology and Bioenergetics Lab (PEBL) is to better understand marine ecosystem function, and ultimately ocean health, by examining the interrelationships between different species and how those species respond to natural and anthropogenic perturbations. To accomplish this goal we need to examine biological systems at a variety of levels. First, we need to understand how individual animals derive their nutritional needs from their environment by studying their energetics, growth, and nutrition. To achieve this we integrate laboratory and field based investigations to elucidate the capabilities of different species to withstand normal seasonal variation in their environment as well as understanding how human induced change can impact them. Ultimately we need to integrate information on individual needs up to a population or species level so we can understand the relationships between different species. To accomplish this, we use a variety of tools to look the feeding ecology and movement patterns of species which live and move across large spatial scales. The PEBL program includes ongoing investigations into the life history and physiological ecology of manatees, cetaceans, and pinnipeds at study sites around the world. We are also actively engaged in marine turtle research through studies of their metabolism and feeding ecology.

Selected Publications:

- Alves-Stanley, C.D. and G.A.J. Worthy. In press. Stable isotope analysis of the skin of the West Indian manatee (*Trichechus manatus*) in Florida, Belize and Puerto Rico. *Marine Ecology Progress Series*.
- Alves-Stanley, C.D. and G.A.J. Worthy. In press. Carbon and nitrogen stable isotope turnover rates and diet-tissue discrimination in Florida manatees (*Trichechus manatus latirostris*). *Journal of Experimental Biology*.
- Witteveen, B.H., G.A.J. Worthy, K.M. Wynn, and J.D. Roth. 2009. Population structure of North Pacific humpback whales on their feeding grounds revealed by stable carbon and nitrogen isotope ratios. *Marine Ecology Progress Series*. In press.
- Worthy, G.A.J. 2008. Manatees. *World Book Encyclopedia*.
- Worthy, G.A.J., Samuel, A.M. and T.A.M. Worthy. 2006. Feeding habits of Indian River Lagoon bottlenose dolphins assessed using stable isotope and fatty acid signature analysis. Pages 27-28 in: Bossart, G.D., J.D. Goldstein, M.E. Murdoch, P.A. Fair and S.D. McCulloch (eds). *Health Assessment of Bottlenose Dolphins in the Indian River Lagoon, Florida and Charleston, South Carolina*. Harbor Branch Oceanographic Institution Technical Report No. 93. 36 p.
- Ortiz, R.M. and G.A.J. Worthy. 2006. Body composition and water turnover rates of bottle-fed West Indian manatee (*Trichechus manatus*) calves. *Aquatic Mammals* 32:41-45.
- Smith, H.S. and G.A.J. Worthy. 2006. Stratification and intra- and inter-specific differences in fatty acid composition in common dolphin (*Delphinus* sp.) blubber. *Comparative Biochemistry and Physiology, Part B* 143: 486-499.

- Reich, K. and G.A.J. Worthy. 2006. An isotopic assessment of the feeding habits of free-ranging manatees. *Marine Ecology Progress Series* 322:303-309.
- Fertl, D., A.J. Schiro, G.T. Regan, C.A. Beck, N. Adimey, L. Price-May, A. Amos, G.A.J. Worthy, and R. Crossland. 2005. Manatee occurrence in the northern Gulf of Mexico, west of Florida. *Gulf and Caribbean Research* 17:69-94.
- Samuel, A.M. and G.A.J. Worthy. 2004. Variability in fatty acid composition of bottlenose dolphin (*Tursiops truncatus*) blubber as a function of body site, season, and reproductive status. *Canadian Journal of Zoology* 82:1933-1942.
- Turner, J.P. and G.A.J. Worthy. 2003. Skull morphometry of bottlenose dolphins (*Tursiops truncatus*) from the Gulf of Mexico. *Journal of Mammalogy* 84:665-672.
- Clark, L.S., D.F. Cowan, G.A.J. Worthy, and E.M. Haubold. 2002. An anatomical and pathological examination of the first recorded stranding of a Fraser's dolphin (*Lagenodelphis hosei*) in the Northwestern Gulf of Mexico. *Gulf of Mexico Science* 2002:38-43.
- Kurle, C.M. and G.A.J. Worthy. 2001. Stable isotope assessment of temporal and geographic differences in the feeding ecology of northern fur seals (*Callorhinus ursinus*) and their prey. *Oecologia* 126:254-265.
- Worthy, G.A.J., T.A. Miculka, and S.D. Wright. 2000. Manatee response to cold: How cold is too cold? U.S. Fish and Wildlife Service. Florida Manatees and Warm Water: Proceedings of the Warm Water Workshop, Jupiter, FL. August 24-25, 1999.
- Ortiz, R.M., D.S. MacKenzie, and G.A.J. Worthy. 2000. Thyroid hormone concentrations in captive and free-ranging West Indian manatees (*Trichechus manatus*). *Journal of Experimental Biology* 203: 3631-3637.
- Ortiz, R.M. and G.A.J. Worthy. 2000. Effects of capture on adrenal steroid and vasopressin concentrations in free-ranging bottlenose dolphins (*Tursiops truncatus*). *Comparative Biochemistry and Physiology Part A* 125: 317-324.

X. FORMS, POLICIES, AND PROCEDURES

Included below is information about several forms that will be useful to the student while they are completing their coursework. In addition to websites where the forms can be found, procedures for filing each of these forms are also outlined.

Each of these forms can be found on the following websites:

Division of Graduate Studies Website: <http://www.graduatestudies.ucf.edu/formsnfiles/>

College Graduate Website: <http://www.cos.ucf.edu/cosgraduate/commonforms.htm>

1) Transfer Request Form

In order for transfer courses to be requested for use in a UCF degree, the official transcripts from the institution where the courses were taken must be sent to UCF's Division of Graduate Studies. In addition to the form, supporting documentation from the program must include a memo that gives approval for courses to be transferred and where credit should be applied in Program of Study. <http://www.graduatestudies.ucf.edu/formsnfiles/>

2) Traveling Scholar Form

If a student would like to request permission to enroll in a graduate course at another regionally accredited institution, this form and a memo of support from the student's program must be submitted to the CAS Director of Graduate Services in advance of the semester of enrollment in the SUS course. <http://www.graduatestudies.ucf.edu/formsnfiles/>
Also visit the section on Traveling Scholars in the Graduate Catalog at <http://www.graduate.ucf.edu/currentGradCatalog/> > Policies > General Policies > Traveling Scholars.

3) Time Conflict (*College Form*)

If a registration attempt results in a time conflict between two courses, in order for the student to be registered, this form must be completed. This form accompanies the override of the course they are into which they are unable to register. This form is submitted to the CAS Director of Graduate Services for approval and course enrollment. <http://www.cas.ucf.edu/graduate/commonforms.htm>

4) Graduate Petition Form

Requests for exceptions to college or university policies are made by petition. The petition process includes both student and program required documentation prior to its receipt in the CAS Graduate Office.

- In addition to the Graduate Petition Form, the student must supply their program with a clear statement of what exactly is being requested, why it is being petitioned and rationale for support
- If approved, the program supplies an additional letter of support and forwards the request to the CAS Director of Graduate Services who reviews and submits to the CAS Associate Dean for Graduate Studies
- If approved, the college supplies an additional letter of support and forwards the request to the UCF Graduate Council Subcommittee for Policy and Appeals

If at any point the petition is denied, the student is given the option of having the petition considered at the next level; however, the Graduate Council provides the final decision regarding petitions. Denials at any level are accompanied with a written explanation.

<http://www.graduatelstudies.ucf.edu/formsnfiles/>

For more details regarding the petition process, please see the policy section on petitions in the Graduate Catalog at <http://www.graduate.ucf.edu/currentGradCatalog/> > Policies > General Policies > Academic Grievance Procedures.

5) Graduate Student Intent to Graduate Form

Intents to Graduate must be filed by the end of registration add/drop in the semester that the student is intending to graduate.

The Graduate Advisor/Coordinator confirms potential completion of degree or certificate program by confirming program/plan, checking audit (making any revisions) and signing the form. The audit (with needed corrections, if any) and form are forwarded to the CAS Director of Graduate Services who verifies potential completion.

Note: If the program of study does not show that all requirements may be met by the end of the intended term, the form will either be approved pending or not processed.

Approved forms are forwarded to the Division of Graduate Studies for processing. If it is determined that the student will not graduate, the CAS Director of Graduate Services should be notified. The student will need to re-file their intent for the next semester they intend to complete the degree. Final certification is completed after grades have been released for the semester, and final transcripts are normally available about three to four weeks after certification.

<http://www.graduatelstudies.ucf.edu/formsnfiles/>

6) Departmental SPEAK Test Policy:

Prior to acceptance of any international student, the faculty advisor must be made aware of their potential financial responsibility in supporting that student. The graduate coordinator will provide a letter of acceptance to the student that will include a statement that the department will support them with a GTA position, similar to students with English as a first language. In addition this letter will explain that the student will need to pass the SPEAK test during their first calendar year to ensure continued GTA support. If a student passes the SPEAK test, they will move into the pool of students eligible for GTA positions, although they may still serve as graders if such positions are available. If a student fails the SPEAK test, they can continue to be a grader for one year. If they do not pass within one year, then either the advisor must financially support that student (salary and tuition) or the department can choose to extend the grader position in the hope that the student will ultimately pass. The latter option will depend on both the number of grader positions available and the number of other students waiting to pass the SPEAK test.

XI. DEPARTMENTAL FORMS:

The following forms are used within the Department of Biology to schedule examinations and be used for the student's annual progress report. They must be completed at least two weeks before the examination to ensure that room scheduling and paperwork have been filed.

ANNUAL PROGRESS EVALUATION FORM

MS – Biology non-thesis option

DATE:

STUDENT'S NAME:

PID#:

Program of Study:

Course work: Currently enrolled in the following courses:

Successfully completed the following courses during the past year:

Oral Qualifying Examination:

Passed ranked: superior adequate weak

Date: _____

Failed first attempt Failed second attempt

Academic Activities:

Presentations, publications, grants written/awarded, etc (attach a separate sheet if needed).

Research Status:

Student is making adequate progress towards their research requirement

Student is not making adequate progress towards their research requirement

Comments:

(Committee Chair)

(Student)

(Member)

(Member)

Dr. Graham Worthy
Graduate Program Coordinator

Dr. Ross Hinkle
Department Chairman

ANNUAL PROGRESS EVALUATION FORM
MS – Biology thesis option

DATE:

STUDENT'S NAME:

PID#:

Program of Study:

Course work: Currently enrolled in the following courses:

Successfully completed the following courses during the past year:

Oral Proposal Defense:

Passed ranked: superior adequate weak

Date: _____

Failed first attempt Failed second attempt

Academic Activities:

Presentations, publications, grants written/awarded, etc (attach a separate sheet if needed).

Research Status:

Student is making adequate progress towards their research requirement

Student is not making adequate progress towards their research requirement

Comments:

(Committee Chair)

(Student)

(Member)

(Member)

Dr. Graham Worthy
Graduate Program Coordinator

Dr. Ross Hinkle
Department Chairman

**COLLEGE OF SCIENCES
PROGRAM OF STUDY BIOLOGY MS – thesis track**

This is a(n): INITIAL X REVISION _____ FINAL _____ (include final grades for certification)

STUDENT NAME: _____ EMPL#: _____

DEPARTMENT: BIOLOGY DATE: _____

THESIS TITLE: _____

<u>NUMBER</u>	<u>COURSE TITLE</u>	<u>SEM HRS</u>	<u>SEM YEAR</u>	<u>GRADE</u>
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CORE (13 HOURS):

PCB 6095	PROFESSIONAL DEVELOPMENT 1	1		
PCB 6096	PROFESSIONAL DEVELOPMENT 2	1		
STA 5175	BIOMETRY (SEE BELOW)*	3		
BSC 6XXX	BIOLOGY SEMINAR	1		
BSC 6XXX	BIOLOGY SEMINAR	1		
BSC 6971	THESIS	6		

REMAINING ELECTIVES (17 HOURS):

* students may substitute another statistics course for this course if approved by their thesis committee. If substitution takes place please enter the new course number under core hours above.

TOTAL HOURS REQUIRED: 30 hours minimum. At least one-half of all hours must be 6000 level or greater, including 6 hrs of thesis, and there should be no more than 6 hours of directed research and/or independent study.

Student Signature

Advisor

Committee Member

Committee Member

Committee Member

Committee Member

Program Coordinator/Department

COLLEGE OF SCIENCES
PROGRAM OF STUDY BIOLOGY MS – non-thesis track

This is a(n): INITIAL X REVISION _____ FINAL _____ (include final grades for certification)

STUDENT NAME: _____ EMPL#: _____

DEPARTMENT: BIOLOGY DATE: _____

<u>NUMBER</u>	<u>COURSE TITLE</u>	<u>SEM HRS.</u>	<u>SEM YEAR</u>	<u>GRADE</u>
---------------	---------------------	-----------------	-----------------	--------------

GROUP A (courses must be selected from 3 of 5 possible categories)

GROUP B

BSC 6XXX	BIOLOGY SEMINAR	1		
BSC 6XXX	BIOLOGY SEMINAR	1		
BSC 6909	RESEARCH REPORT	2		

GROUP C

TOTAL HOURS REQUIRED: 40 hours minimum. At least one-half of all hours must be 6000 level or greater, including 6 hrs of thesis, and there should be no more than 6 hours of directed research and/or independent study.

Student Signature

Program Coordinator/Department

Scheduling of MS (non-thesis track) Oral Examination

**Department of Biology
University of Central Florida**

DATE: _____

STUDENT'S NAME: _____ **PID#:** _____

The Graduate Coordinator has agreed that it is appropriate that I schedule the Oral Examination, a requirement of the non-thesis track, on the following date:

EXAM DATE: _____ **ROOM:** _____

(Graduate Coordinator)

(Exam Committee Chair)

(Student)

(Member)

(Member)

Scheduling of MS (thesis track) Oral Proposal Defense

**Department of Biology
University of Central Florida**

DATE: _____

STUDENT'S NAME: _____

PID#: _____

I have completed my proposal and my thesis committee has agreed that it is appropriate that I schedule a public presentation of my proposal and defend it on the following date:

THESIS TITLE:

PROPOSAL DEFENSE DATE: _____

ROOM: _____

(Committee Chair)

(Student)

(Member)

(Member)

Scheduling of MS (thesis track) Thesis Defense

**Department of Biology
University of Central Florida**

DATE: _____

STUDENT'S NAME: _____

PID#: _____

I have completed writing my thesis and my committee has agreed that it is appropriate that I give a public presentation of my thesis and defend it on the following date:

THESIS TITLE:

THESIS DEFENSE DATE: _____ **ROOM:** _____

(Committee Chair)

(Student)

(Member)

(Member)

Evaluation of MS Thesis Defense

**Department of Biology
University of Central Florida**

Date of Examination: _____

Student's Name: _____

Employee Identification Number: _____

Results of Examination (Circle): Pass Fail

Signatures:

Committee Chairman: _____

Committee Members: _____

Comments: