

 <b>FLORIDA ATLANTIC UNIVERSITY</b>	<b>NEW COURSE PROPOSAL</b> <b>Graduate Programs</b>		UGPC Approval _____ UFS Approval _____ SCNS Submittal _____ Confirmed _____ Banner _____ Catalog _____	
	<b>Department</b>  <b>College</b> (To obtain a course number, contact <a href="mailto:erudolph@fau.edu">erudolph@fau.edu</a> )			
<b>Prefix</b>  <b>Number</b>	(L = Lab Course; C = Combined Lecture/Lab; add if appropriate) <b>Lab Code</b>	<b>Type of Course</b>	<b>Course Title</b>	
<b>Credits</b> (See <a href="#">Definition of a Credit Hour</a> )	<b>Grading</b> (Select One Option)  <b>Regular</b>  <b>Sat/UnSat</b>	<b>Course Description</b> (Syllabus must be attached; see <a href="#">Template</a> and <a href="#">Guidelines</a> )		
<b>Effective Date</b> (TERM & YEAR)				
<b>Prerequisites</b>     <i>Prerequisites, Corequisites and Registration Controls are enforced for all sections of course.</i>		<b>Academic Service Learning (ASL) course</b>  Academic Service Learning statement must be indicated in syllabus and approval attached to this form.		
		<b>Corequisites</b>	<b>Registration Controls</b> (For example, Major, College, Level)	
<b>Minimum qualifications needed to teach course:</b> Member of the FAU graduate faculty and has a terminal degree in the subject area (or a closely related field).		<b>List textbook information in syllabus or here</b>		
<b>Faculty Contact/Email/Phone</b>		<b>List/Attach comments from departments affected by new course</b>		

<b>Approved by</b> Department Chair <u>Sarah L. Patton</u> College Curriculum Chair <u>[Signature]</u> College Dean <u>[Signature]</u> UGPC Chair _____ UGC Chair _____ Graduate College Dean _____ UFS President _____ Provost _____	<b>Date</b> 9-22-25 9/22/2025 9/22/2025 _____ _____ _____ _____ _____
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Email this form and syllabus to [UGPC@fau.edu](mailto:UGPC@fau.edu) 10 days before the UGPC meeting.

**PCB 6047**  
**Recent Advances in Ecology and Evolution**

3 credits

Prof. Michael McCoy  
Office: HBOI L1-146  
Email: [mccoym@fau.edu](mailto:mccoym@fau.edu)

**Course Description**

This course will provide an in-depth exploration of emerging topics at the cutting edge of contemporary ecological or evolutionary research. The topics covered in this course will be diverse and dynamic from year to year. The course will be founded around a recently published book, edited volume, or collection of published papers on an emerging topic of interests.

**Instructional Method**

The course will include lectures/presentations and paper discussions. The course will be offered in person.

**Prerequisites/Corequisites**

None.

**Textbook and Required Readings:**

No required textbook. All readings will be provided

**Course Objectives/Student Learning Outcomes**

**Student Learning Outcomes:**

Students will gain an in depth understanding of a contemporary topic important to their academic discipline.

In the end, students will be able to:

1. Describe the basic tenets of relevant theory and key findings of empirical research on an emerging topic in ecology and evolution.
2. Identify gaps in knowledge and describe directions for future research development on an emerging topic.
3. Understand how to read, interpret, critique, and synthesize contemporary research concepts and or methods.
4. Create and present a lecture or professional presentation on recent scientific literature
5. Describe the historical context of why an emerging topic is important and identify the big unanswered questions that remain in the field.
6. Demonstrate the ability to work collaboratively

**Objectives:**

- Introduce students to current theory and advanced concepts in contemporary ecology and evolution.
- Demonstrate the etymology of idea development and promote the development of a deep understanding for the conceptual basis of current ideas about how natural processes affect individuals, populations, communities, and ecosystems.
- Promote the development and expression of critical and independent thinking about ecological and evolutionary research
- Establish future leaders and professionals with an in-depth state of the field understanding of major ecological and evolutionary concepts
- Educate future leaders and professionals with specialized skills by teaching methods of collecting, interpreting, analyzing, and presenting scientific data both orally and written
- Enable future leaders and professionals to contribute to the profession through practical skills development

**Course Evaluation Method**

- Participation and discussion: 30%
- Weekly reading responses and peer reviews: 10%
- Research paper or modeling project: 20%
- Presentations: 40%

**Code of Academic Integrity**

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the university mission to provide a high-quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the university community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see [University Regulation 4.001](#).

**Attendance Policy Statement**

Students are expected to attend all their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of nonattendance. Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations, or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances, and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work

missed without any reduction in the student's final course grade as a direct result of such absence.

### **Religious Accommodation Policy Statement**

In accordance with the rules of the Florida Board of Education and Florida law, students have the right to reasonable accommodations from the University in order to observe religious practices and beliefs regarding admissions, registration, class attendance, and the scheduling of examinations and work assignments. University Regulation 2.007, Religious Observances, sets forth this policy for FAU and may be accessed on the FAU website at [www.fau.edu/regulations](http://www.fau.edu/regulations). Any student who feels aggrieved regarding religious accommodations may present a grievance to the executive director of The Office of Civil Rights and Title IX. Any such grievances will follow Florida Atlantic University's established grievance procedure regarding alleged discrimination.

### **Time Commitment Per Credit Hour**

For traditionally delivered courses, not less than one (1) hour of classroom or direct faculty instruction each week for fifteen (15) weeks per Fall or Spring semester, and a minimum of two (2) hours of out of class student work for each credit hour. Equivalent time and effort are required for Summer Semesters, which usually have a shortened timeframe. Fully Online courses, hybrid, shortened, intensive format courses, and other non-traditional modes of delivery will demonstrate equivalent time and effort.

### **Course Grading Scale**

<b>Letter Grade</b>	<b>Numeric Grade (%)</b>
A	94 - 100%
A-	90 - 93%
B+	87 - 89%
B	83 - 86%
B-	80 - 82%
C+	77 - 79%
C	73 - 76%
C-	70 - 72%
D+	67 - 69%
D	63 - 66%
D-	60 - 62%
F	Below 60

### **Grade Appeal Process**

You may request a review of the final course grade when you believe that one of the following conditions apply:

- There was a computational or recording error in the grading.
- The grading process used non-academic criteria.
- There was a gross violation of the instructor's own grading system. [University Regulation 4.002](#) of the University Regulations contains information on the grade appeals process

## **Policy on Make-up Tests, Late work, and Incompletes**

Please contact me in advance if you will not be able to attend class, or complete assignments and I will work with you. Because this is a discussion-based course, non-attendance should be rare and only if completely unavoidable.

## **Special Course Requirements**

Curiosity, an open mind, and an insatiable desire to understand.

## **Policy on the Recording of Lectures**

Students enrolled in this course may record video or audio of class lectures for their own personal educational use. A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach students about a particular subject. Recording class activities other than class lectures, including but not limited to student presentations (whether individually or as part of a group), class discussion (except when incidental to and incorporated within a class lecture), labs, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, and private conversations between students in the class or between a student and the lecturer, is prohibited. Recordings may not be used as a substitute for class participation or class attendance and may not be published or shared without the written consent of the faculty member. Failure to adhere to these requirements may constitute a violation of the University's Student Code of Conduct and/or the Code of Academic Integrity.

## **Artificial Intelligence Preamble**

FAU recognizes the value of generative AI in facilitating learning. However, output generated by artificial intelligence (AI), such as written words, computations, code, artwork, images, music, etc., for example, is drawn from previously published materials and is not your own original work. FAU students are not permitted to use AI for any course work unless explicitly allowed to do so by the instructor of the class for a specific assignment. [\[Policy 12.16 Artificial Intelligence\]](#) Class policies related to AI use are decided by the individual faculty. Some faculty may permit the use of AI in some assignments but not others, and some faculty may prohibit the use of AI in their course entirely. In the case that an instructor permits the use of AI for some assignments, the assignment instructions will indicate when and how the use of AI is permitted in that specific assignment. It is the student's responsibility to comply with the instructor's expectations for each assignment in each course. When AI is authorized, the student is also responsible and accountable for the content of the work. AI may generate inaccurate, false, or exaggerated information. Users should approach any generated content with skepticism and review any information generated by AI before using generated content as-is.

If you are unclear about whether or not the use of AI is permitted, ask your instructor before starting the assignment. Failure to comply with the requirements related to the use of AI may constitute a violation of the [Florida Atlantic Code of Academic Integrity, Regulation 4.001](#).

**Proper Citation:** If the use of AI is permitted for a specific assignment, then use of the AI tool must be properly documented and cited. For more information on how to properly cite the use of AI tools, visit <https://fau.edu/ai/citation>

## **Counseling and Psychological Services (CAPS) Center**

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual therapy, group therapy, and crisis services, to name a few - offered to help improve and maintain emotional well-being. For more information, go to <http://www.fau.edu/counseling/>

### **Student Support Services and Online Resources**

Center for Learning and Student Success (CLASS)  
Counseling and Psychological Services (CAPS)  
FAU Libraries  
Math Learning Center  
Office of Information Technology Helpdesk  
Center for Global Engagement  
Office of Undergraduate Research and Inquiry (OURI)  
Science Learning Center  
Speaking Center  
Student Accessibility Services  
Student Athlete Success Center (SASC)  
Testing and Certification  
Test Preparation  
University Academic Advising Services  
University Center for Excellence in Writing (UCEW)  
Writing Across the Curriculum (WAC)

### **Topical Outline**

#### **Topic Specific Example – Thermal Ecology**

This course explores the role of temperature in shaping ecological processes across levels of biological organization—from molecular physiology to ecosystems. Emphasis will be placed on organismal responses to temperature, and climate variability, including the physiological, behavioral, and evolutionary mechanisms that mediate thermally regulated interactions in ecological contexts.

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### **Learning Objectives:**

By the end of this course, students should be able to:

1. Explain the physical principles of heat transfer and their ecological implications.
2. Describe how temperature affects physiological processes across taxa.
3. Critically evaluate primary literature in thermal ecology.
4. Apply quantitative models to predict organismal and ecological responses to temperature.
5. Design experiments or studies to test hypotheses related to thermal ecology and climate change.

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## Topical Outline

Week	Topic	Key Concepts	Suggested Readings
1	Introduction to Thermal Ecology	Scope, history, relevance; overview of temperature effects on life	(Elmore et al., 2017; Huey & Kingsolver, 1989; Ward & Stanford, 1982)
2	Principles of Heat Transfer	Conduction, convection, radiation, evaporation	
3	Thermal Performance Curves	Ectotherm vs. endotherm performance; performance breadth	(Angilletta Jr, 2006; Dell et al., 2011)
4	Thermal Adaptation and Acclimation	Phenotypic plasticity, acclimatization, reaction norms	(Seebacher et al., 2015; Stillman, 2003)
5	Behavioral Thermoregulation	Movement, microhabitat selection, costs and trade-offs	(Kearney et al., 2009)
6	Metabolic Theory and Scaling	Metabolic rate, temperature dependence, ecological implications	(Brown et al., 2004; Gillooly et al., 2001; McCoy & Gillooly, 2008)
7	<b>Thermal Limits and Tolerance</b>	Critical thermal limits, lethal temperatures, survival models	(Jørgensen et al., 2022; Lutterschmidt & Hutchison, 1997; Sunday et al., 2011, 2012; Verberk et al., 2021)
8	<b>Nighttime Warming and Diurnal Asymmetry</b>	Ecological implications of warming nights, stress accumulation, altered diel cycles	(Sheridan & Bickford, 2011; Speights et al., 2017; Zhao et al., 2014)
9	Thermoregulation in Endotherms	Energy budgets, homeostasis, thermogenesis	(Angilletta et al., 2010; Clarke & Pörtner, 2010; Kronfeld-Schor & Dayan, 2013; McKechnie & Wolf, 2010)
10	<b>Trophic Interactions and Thermal Mismatch</b>	Predator-prey dynamics, phenological shifts, thermal sensitivity mismatches	(Davidson et al., 2021, 2024; Dell et al., 2014; O'Connor et al., 2012; Sentis et al., 2012)

Week	Topic	Key Concepts	Suggested Readings
11	Evolutionary Responses to Temperature	Local adaptation, experimental evolution, climate gradients	(Faillace et al., 2021; Gardner et al., 2011; McGaughan et al., 2021; Zarzyczny et al., 2024)
12	Climate Change and Organismal Responses	Warming impacts, range shifts, extinction risk	(Deutsch et al., 2008; Sunday et al., 2012; Tewksbury et al., 2008)
13	Thermal Ecology in Aquatic Systems	Thermal stratification, oxygen solubility, aquatic ectotherms	(Fathy, 2024)
14	Urban Thermal Ecology	Heat islands, urban wildlife, thermal niche shifts	(Diamond et al., 2020; Diamond & Martin, 2021)
15	Modeling Thermal Environments	Biophysical models, species distribution modeling	(Buckley et al., 2010; Davidson et al., 2024; Kearney & Porter, 2009)

### References

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