

FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—NEW COURSE PROPOSAL¹

UGPC APPROVAL _____
 UFS APPROVAL _____
 SCNS SUBMITTAL _____
 CONFIRMED _____
 BANNER POSTED _____
 CATALOG _____

DEPARTMENT: BIOLOGICAL SCIENCES

COLLEGE: COLLEGE OF SCIENCE

RECOMMENDED COURSE IDENTIFICATION:

PREFIX BSC COURSE NUMBER 6344 LAB CODE (L or C)

(TO OBTAIN A COURSE NUMBER, CONTACT MJENNING@FAU.EDU)

COMPLETE COURSE TITLE: Sensory Biology & Behavior of Fishes

EFFECTIVE DATE

(first term course will be offered)
 FALL 2014

CREDITS²: 3

TEXTBOOK INFORMATION: von der Emde, G, J Mogdans & BG Kapoor (eds). 2004, The Senses of Fish, Adaptations for the Reception of Natural Stimuli. Kluwer Academic Publishers Inc., 377 pp.

GRADING (SELECT ONLY ONE GRADING OPTION): REGULAR _____ SATISFACTORY/UNSATISFACTORY _____

COURSE DESCRIPTION, NO MORE THAN THREE LINES: Sensory Biology & Behavior of Fishes. A study of the anatomy and physiology of sensory structures in fishes, as well as the neural processing and behaviors elicited by these senses. Topics include vision, olfaction, audition, gustation, lateral line, tactile, and electrosensation.

PREREQUISITES *: Permission of the instructor

COREQUISITES*:

REGISTRATION CONTROLS (MAJOR, COLLEGE, LEVEL)*:

* PREREQUISITES, COREQUISITES AND REGISTRATION CONTROLS WILL BE ENFORCED FOR ALL COURSE SECTIONS.

MINIMUM QUALIFICATIONS NEEDED TO TEACH THIS COURSE: PH.D. IN THE RELEVANT FIELD

Faculty contact, email and complete phone number:
 Dr. Stephen Kajiura
kajiura@fau.edu
 (561)-297-2677

Please consult and list departments that might be affected by the new course and attach comments.³

Approved by:

Department Chair: [Signature]

College Curriculum Chair: [Signature]

College Dean: [Signature]

UGPC Chair: [Signature]

Graduate College Dean: [Signature]

UFS President: _____

Provost: _____

Date:

1/30/14
2/10/14
2/10/14
2/26/14
2/26/14

1. Syllabus must be attached; see guidelines for requirements: www.fau.edu/provost/files/course_syllabus.2011.pdf

2. Review Provost Memorandum: **Definition of a Credit Hour** www.fau.edu/provost/files/Definition_Credit_Hour_Memo_2012.pdf

3. Consent from affected departments (attach if necessary)

Email this form and syllabus to UGPC@fau.edu one week before the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website prior to the meeting.

Course Syllabi for Sensory Biology & Behavior of Fishes

- 1. Course title/number and number of credit hours**
Sensory Biology & Behavior of Fishes – BSC 6344 – 3 credit hours
- 2. Course prerequisites**
Permission of the instructor
- 3. Course logistics**
 - a. Term – Fall 2014
 - b. Notation if online course – N/A
 - c. Class location and time (if classroom-based course) – To be determined
- 4. Instructor contact information**
 - a. Instructor's name – Dr. Stephen Kajiura
 - b. Office address – Sanson Bld, , Room 215
 - c. Office hours – To be determined
 - d. Contact telephone number – office (561) 297-2677
 - e. E-mail address – kajiura@fau.edu
- 5. TA contact information (if applicable)**
N/A
- 6. Course description**
➤ An in-depth examination of fish sensory systems and how they are utilized in behavior.
- 7. Course objectives/student learning outcomes**

This graduate course is designed to have a significant student teaching component. Class discussions will focus on contemporary issues in fish sensory biology through presentations and discussions of assigned readings. The course is comprised of the following assignments:

 - I. Each week we will cover a different chapter from the required text. For each session, two students will present an overview of the topic including a summary of the chapter and examples of exceptions from outside sources. For example, a presentation on vision will cover not only the basics of the fish visual system, but also address some unusual adaptations such as four-eyed fish (*Anableps anableps*) etc. The students will also lead a class discussion on the assigned readings, chosen in conjunction with the instructor. Remember, it is the duty of discussion leaders to only answer technical questions about the papers and to keep the discussion moving along. It is the responsibility of each student in the class to critically review each paper and raise their questions to the group. For example, has the author formally stated a hypothesis or question? Is the methodology correct or appropriate? Are the data adequate and have the

appropriate statistical analyses been performed? Do the data justify the author's conclusions? A significant portion of your grade will be based upon your class participation in these discussions for the duration of the course.

II. A choice of either a term paper or an independent research project. A final paper on a topic of the student's choosing is due in class on December 06. The paper will not exceed 6 pages single spaced (plus references and figures) and will address a topic in sensory biology or behavior agreed upon with the instructor by September 27. Students are required to choose a topic outside the realm of their graduate research. The paper can either be in the form of a review or represent results of original research. Each student will present a brief (10min) summary of their topic during the symposium on Dec 06. Plagiarism will not be tolerated and will result in immediate failure.

8. Course evaluation method

Presentation & discussion leadership	40
Participation	20
Term paper / research project	30
Symposium presentation	<u>10</u>
Total	100

Labs:

Each student is strongly encouraged to attend lab sessions throughout the semester that address various topics including vision, olfaction, electroreception, and electrocommunication. Count on spending approximately 1 hour on each lab. More information will be provided as experiment dates are finalized.

Field trip:

A required field trip to the Keys Marine Laboratory will take place on September 16-18. The field trip will include snorkeling in reef, seagrass, and mangrove habitats to observe fish behavior, long line fishing, and gill net fishing. Students will actively participate in various demonstrations and experiments. Evening lectures and discussions will complement each day's activities. A lab fee of \$130 per person will be assessed to cover transportation, accommodations and boat use at the Keys Marine Laboratory. Students are responsible for their own meals.

9. Course grading scale (optional)

10. Policy on makeup tests, late work, and incompletes

If a student cannot attend an exam or hand in a homework project on time due to circumstances beyond their control then the instructor may assign appropriate make-up work. Students will not be penalized for absences due to participation in University-approved activities, including athletic or scholastics teams, musical and theatrical performances, and debate activities.

These students will be allowed to make up missed work without any reduction in the student's final course grade. Reasonable accommodation will also be made for students participating in a religious observance. Also, note that grades of Incomplete ("I") are reserved for students who are passing a course but have not completed all the required work because of exceptional circumstances. A grade of "I" will only be given under certain conditions and in accordance with the academic policies and regulations put forward in FAU's University Catalog. The student must show exceptional circumstances why requirements cannot be met. A request for an incomplete grade has to be made in writing with supporting documentation, where appropriate.

Religious accommodation:

Reasonable accommodation will be made for students participating in a religious observance.

11. Special course requirements (if applicable)

N/A

12. Classroom etiquette policy (if applicable)

University policy on the use of electronic devices states: "In order to enhance and maintain a productive atmosphere for education, personal communication devices, such as cellular telephones and pagers, are to be disabled in class sessions."

13. Disability policy statement

In compliance with the Americans with Disabilities Act (ADA), students who require special accommodation due to a disability to properly execute coursework must register with the Office for Students with Disabilities (OSD) -- in Boca Raton, SU 133 (561-297-3880); in Davie, MOD 1 (954-236-1222); in Jupiter, SR 117 (561-799-8585); or at the Treasure Coast, CO 128 (772-873-3305) -- and follow all OSD procedures.

14. Honor Code policy statement

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty, including cheating and plagiarism, 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 at http://www.fau.edu/regulations/chapter4/4.001_Honor_Code.pdf.

15. Required texts/readings

von der Emde, G, J Mogdans & BG Kapoor (eds). 2004, The Senses of Fish, Adaptations for the Reception of Natural Stimuli. Kluwer Academic Publishers Inc., 377 pp.

16. Supplementary/recommended readings (optional)

17. Course topical outline

Lecture schedule:

Date	Topic (chapter)	Presenters
23-Aug	Introduction	
30-Aug	no class	
06-Sep	1. Vision	Davis, Penny R. Baez, Jennifer J.
13-Sep	3. Olfaction	Weeks, Rebecca M. Pate, Jessica H. Augliere-Wheat, Barbarite, Gabrielle Bethany N. M.
20-Sep	4. Taste	
27-Sep	7. Hearing	Resnick, Bethany R. Bedore, Christine N.
04-Oct	11. Lateral line	Snow, Tiffany M. Warraich, Tatiana N.
11-Oct	13. Teleost electroreception	Young, Jeremy Martin, Heath A.
18-Oct	14. Elasmobranch electroreception	Bennice, Chelsea Smith, Kieran T.
25-Oct	Shoaling	Lieuwen, Bethany J. Harris, Lindsay L.
01-Nov	Foraging	Pate, Jessica H. Warraich, Tatiana N.
08-Nov	Mating	Harris, Lindsay L. Bedore, Christine N.
15-Nov	Defense	Tellman, Shari L. West, Lorin
22-Nov	Communication	McCutcheon, Sara M. Weeks, Rebecca M. Augliere-Wheat, Barbarite, Gabrielle Bethany N. M.
29-Nov	Migration	
06-Dec	Student symposium	

Potential term paper topics:

blind cave fishes
magnetoreception
salmon imprinting
sensory adaptations to the deep sea
chromatophores as environmental sensors
visualizing polarized light
schreckstoff
Mauthner cells
parental care
diel behavior
jamming avoidance response