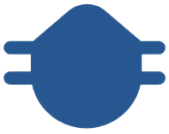
Introduction to Fishery Science – Spring 2022

FAS 4305C – 3 credits

Important Information:

This course is taught in a face-to-face format. During all face-to-face activities, the following public health and safety protocols are recommended of all students, instructors, and teaching assistants:



Bring and wear a face mask indoors at all times when.

Wash hands (>20 sec) before and during class.

Maintain responsible physical distancing at six feet.

If you feel sick or have symptoms, stay home.

Stay informed of current Covid-19 policies. If you are experiencing COVID-19 symptoms please use the UF Health screening system and follow the instructions on whether you should attend class. Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.

Course Overview:

The primary objective of this course is to provide students with a basic understanding of fishery science. Knowledge and application of knowledge will be gained through classroom lectures, classroom activities, computer labs, and hands-on field experience with a broad array of research methods used in fishery science. Research methods will include not only field and laboratory techniques, but also data management and analyses, hypothesis formation and testing, and formulation of management practices for aquatic resources.

Fishery science encompasses a variety of scientific disciplines including physics, chemistry, and biology. By participating in this course, students will gain an understanding of:

1) the structure and function of aquatic habitats/systems,
2) limnological field sampling and laboratory processing techniques,
3) common fish field sampling and processing methods,
4) analysis and reporting of limnological and fishery data, and
5) many of the major issues facing aquatic resources.

Instructors:

This course is team-taught to provide students the opportunity to benefit from the diverse experience of professionals who are working with water quality, habitat, and fish populations in natural systems. Instructors, along with their support staff and graduate students, are located off main campus at the School of Forest, Fisheries, and Geomatics Sciences, Program of Fisheries and Aquatic Sciences (7922 NW 71st Street, Gainesville, FL 32653).

Instructors: Dr. Daniel E. Canfield, Jr. - Professor, Limnology
Phone: 352-273-3620 Email: DECan@ufl.edu

Dr. Chuck Cichra - Professor, Fish Ecology and Management
Phone: 352-273-3621 Email: CECichra@ufl.edu

Co-Instructors: Mrs. Crystal Hartman – Biological Scientist
Phone: 352-273-3622 E-mail: C.Hartman@ufl.edu

Mrs. Marina Schwartz - Regional Coordinator Florida LAKEWATCH
Phone: 352-273-3640 E-mail: mevanskeene@ufl.edu

Office Hours:
Instructors are available for help before and after class, by phone and/or email, and by appointment. One-on-one Zoom sessions can be scheduled to go over course content, project-related work, or any other topic. Students, encountering difficulties with course material or seeking additional information, are strongly encouraged to make an appointment. We want you to succeed in our course!

Course Website:
This course will be supported by a UF e-learning CANVAS website located at https://elearning.ufl.edu/. It will include the course syllabus, lecture presentations, recommended readings, handouts, course assignments, past and current lab data, presentation and paper guidelines, and other materials.

Schedule:
Lecture: 5th period (11:45 AM to 12:35 PM) on Tuesdays and Thursdays in 3108 McCarty B.
Laboratory: 6-9th periods (12:50 PM to 4:55 PM) on Thursdays at Lake Alice, in 3096 McCarty B, in the CALS computer lab (3086 McCarty B), or at other designated locations.

Course Logistics:
Students may access lectures, assignments, readings, and supporting materials through the course Canvas site, as they become available. This course will be taught in a face-to-face format, unless the COVID Pandemic forces UF classes to go to a virtual mode.

Technology Requirements:
- A computer or mobile device with high-speed internet connection.
- A webcam, headset and/or microphone, and speakers.
- Latest version of web browser. Canvas supports only the two most recent versions of any given browser. What browser am I using?
- Installation of proctoring software may be required and will be provided if so.

If this course Synchronous online sessions will be recorded. By sharing your video, screen, or audio during any synchronous online class sessions, you are consenting to being recorded for the benefit of students who cannot attend live, as well as for class review during the current semester. If you have special circumstances or concerns about privacy, it is your responsibility to discuss it with your instructor. Dr. Cichra requests that all students use video during the synchronous Zoom sessions, so that he can better interact with students during the sessions.

Recommended Textbooks:
There are no required texts. A variety of handouts will be provided to you either as paper copies or electronically through our e-learning website. You may also find these useful:

American Fisheries Society. 2007. Analysis and Interpretation of Freshwater Fisheries Data. C.S. Guy and M.L. Brown (editors), American Fisheries Society, Bethesda, MD. 961 pp.

American Fisheries Society. 2009. Standard Methods for Sampling North American Freshwater Fishes. S.A. Bonar, W.A. Hubert, and D.W. Willis (editors), American Fisheries Society, Bethesda, MD. 335 pp.

American Fisheries Society. 2010. Inland Fisheries Management in North America. W.A. Hubert and M.C. Quist (editors), American Fisheries Society, Bethesda, MD. 736 pp.

American Fisheries Society. 2013. Fisheries Techniques. Zale, A.V., D.L. Parrish, and T.M. Sutton (editors), American Fisheries Society, Bethesda, MD. 1009 pp.

Boyd, C. E. 1979. Water Quality in Warmwater Fish Ponds. Auburn University, Alabama Agricultural Experiment Station, Auburn, AL. 359 pp. (online $10 to $50 – newer edition is available)

Hoyer, M.V., and D.E. Canfield, Jr. 1994. Handbook of Common Freshwater Fish in Florida Lakes. Special Publication 160. University of Florida, Florida Cooperative Extension Service, Gainesville, FL. 178 pp. (UF/IFAS Bookstore – on sale for $1.00 – http://ifasbooks.ifas.ufl.edu/p-162-handbook-of-common-freshwater-fish-in-florida-lakes.aspx)

Grading:

First Exam	15%	Lake Alice Oral Presentation	10%
Second Exam	15%	Lake Alice Research Paper	20%
Final Exam	15%	Classroom / Lab Participation	5%
Assignments	10%	Laboratory / Field Notebook	10%

A: 94-100%	A-: 90-93.9%	B+: 87-89.9%	B: 84-86.9%	B-: 80-83.9%	C+: 77-79.9%
C: 74-76.9%	C-: 70-73.9%	D+: 67-69.9%	D: 64-66.9%	D-: 60-63.9%	E: < 60%

For UF's grading policy, see https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Exams and Assignments:
The first and second exams will consist of a variety of short-answer questions that cover only the first and second portions of the course. The final take-home exam is a cumulative essay exam. All exams will cover lecture, laboratory, and assignment materials. Review sessions may be held before the exams if students request a review prior to the exam.

There are four assignments and a lab/field notebook to be completed over the course of the semester:

1) *Paper Reviews* – Two past Lake Alice papers will be handed out during the first two weeks of class and posted on our e-learning website. You will be asked to read them prior to your paper lab (PAP), at which time, you will discuss the papers. You will then provide a written review of each paper, along with completing a score sheet for each paper, using the same score sheet used to score your Lake Alice paper. These will be due one week after your respective PAP lab.

2) *Lake Alice Paper Topics* – You will develop and turn in two possible topics for your Lake Alice paper, including your question (testable hypothesis) and what variables/data that you plan to use for your paper. **Due March 3rd**

3) *Lake Alice Paper Methods* – After deciding which topic you plan to address in your Lake Alice paper, you will submit the appropriate methods section for your paper. This should include both field and laboratory methods. **Due March 17th**

4) *Data Lab (DATA)* – During this lab, you will use a provided dataset to manipulate the data, perform statistical analyses, and create graphs and tables. One half of the class due on **Feb 24th** - second half of the class due on **March 3rd**

5) *Field notebook* – Each lab, you will make an entry into your notebook. Entries should include the following: date, time, weather conditions, gear information (specifications, biases, intended use, etc.), sampling methods/locations, and any other notes related to the lab. Entries also should be made for the data, anatomy, aquatic plant, and invertebrate labs. **Due April 7th**

Lake Alice Research Paper and Presentation:
Each student will submit a written research paper that includes a testable hypothesis (question) and at least one water quality parameter and one fish parameter from Lake Alice. Students must use 2022 data. Additional annual data for Lake Alice are available, from 1992 to present, on our course website. Thereafter, a 10 to 12-minute oral presentation, using Power Point or similar presentation software, will be given to the course instructors. **Paper Due April 7th Talk times/dates to be scheduled.**

Attendance and Participation:
Attendance is not regularly taken in the classroom. Participation is a part of your grade for the course and evaluated based on involvement in the classroom (i.e., asking and answering questions, attentiveness, involvement in discussion, etc.). Laboratory attendance is mandatory as your lab mates depend on you to be there. Please provide prior notification and/ or documentation if a laboratory must be missed. Attendance will be taken at every lab. Students are expected to show up on time at the lab and do their share of the field work.

Lake Alice Laboratory:
A field study of the Lake Alice ecosystem will be conducted by teams of students to determine the current status of the lake's water quality and fish community. Students will receive training in select field and laboratory methods and given the opportunity to analyze and interpret real ecological data.

Working in teams, students will spend much of the semester in the field, conducting a variety of specific tasks. These tasks include:

- Water sampling and analysis
- Electrofishing and processing of fish (identifying, measuring, weighing, marking, and tagging)
- Recording and analyzing data

Other activities will include:

- Discussion of course content/your reasons for taking the course/career interests
- Freshwater aquatic invertebrate identification, biology and ecology
- Aquatic plant identification, biology, ecology, and management
- Fish anatomy, biology, and ecology

The laboratories on Lake Alice will include intensive field work. Each student should be prepared to attend and actively participate in each field exercise. Dress warmly for cold weather, bring rain gear and a set of dry clothes. The lab will only be cancelled if thunderstorms are imminent. In addition, you will be provided with a notebook for recording your personal field notes (i.e., the methods for the given field activity, weather conditions, etc.). Bring it to each lab. All data should be recorded in pencil.

This course requires a "Materials and Supplies Fee", typically ~$30.

General Policies:
This course plan and syllabus are subject to change in response to student and instructor needs. Any changes will be clearly communicated in advance through Canvas.

Late Submissions & Make-up Requests

It is the responsibility of the student to access on-line lectures (PowerPoint or any recorded Zoom lectures), readings, and assignments, and to maintain satisfactory progress in the course. Requirements for class attendance and make-up assignments and other work are consistent with university policies that can be found at: https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx

Computer or other hardware failures, except failure of the UF e-Learning system, will not excuse students for missing assignments. Any late submissions due to technical issues MUST be accompanied by the ticket number received from the Helpdesk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request consideration.

For computer, software compatibility, or access problems call the HELP DESK phone number—352-392-HELP = 352- 392-4357 (option 2).

Communication Courtesy and Professionalism

Just as in any professional environment, meaningful and constructive dialogue is expected in this class and requires a degree of mutual respect, willingness to listen, and tolerance of opposing points of view. **Respect for individual differences and alternative viewpoints will be maintained in this class at all times.** All members of the class are expected to follow rules of common courtesy, decency, and civility in all interactions. Failure to do so will not be tolerated and may result in loss of participation points and/or referral to the Dean of Students' Office.

Semester Evaluation Process
Student assessment of instruction is an important part of efforts to improve teaching and learning.

At approximately the mid-point of the semester, the School of Forest, Fisheries, and Geomatics Sciences may request anonymous feedback on student satisfaction on various aspects of this course. These surveys will be sent out through Canvas and are not required but encouraged. This is not the UF Faculty Evaluation!

At the end of the semester, students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals.

Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

Academic Honesty Policy

As a student at the University of Florida, you have committed yourself to uphold the Honor Code, which includes the following pledge: *"We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.*"

You are expected to exhibit behavior consistent with this commitment to the UF academic community, and on all work submitted for credit at the University of Florida, the following pledge is either required or implied*: "On my honor, I have neither given nor received unauthorized aid in doing this assignment.*"

It is assumed that you will complete all work independently in each course unless them instructor provides explicit permission for you to collaborate on course tasks (e.g., assignments, papers, quizzes, exams). Furthermore, as part of your obligation to uphold the Honor Code, you should report any condition that facilitates academic misconduct or appropriate personnel. It is your individual responsibility to know and comply with all university policies and procedures regarding academic integrity and the Student Honor Code. Violations of the Honor Code at the University of Florida will not be tolerated.

Violations will be reported to the Dean of Students Office for consideration of disciplinary action. For more information regarding the Student Honor Code, please see: http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code.

Inclusive Learning Environment

This course embraces the University of Florida's Non-Discrimination Policy, which reads,

> *The University shall actively promote equal opportunity policies and practices conforming to laws against discrimination. The University is committed to non-discrimination with respect to race, creed, color, religion, age, disability, sex, sexual orientation, gender identity and expression, marital status, national origin, political opinions or affiliations, genetic information and veteran status as protected under the Vietnam Era Veterans' Readjustment Assistance Act.*

If you have questions or concerns about your rights and responsibilities for inclusive learning environment, please see the instructor or refer to the Office of Multicultural & Diversity Affairs website: http://multicultural.ufl.edu.

Services for Students with Disabilities

The Disability Resource Center coordinates the needed accommodations of students with disabilities. This includes registering disabilities, recommending academic accommodations within the classroom, accessing special adaptive computer equipment, providing interpretation services and mediating faculty-student disability related issues. Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation. 0001 Reid Hall, 352-392-8565, http://www.disability.ufl.edu

Software Use
All faculty, staff and students of the university are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate.

Campus Helping Resources:
For issues with technical difficulties for e-learning in Canvas, please post your question to the Technical Help Discussion in your course, or contact the UF Help Desk at:

- Learning-support@ufl.edu | (352) 392-HELP - select option 2 | http://elearning.ufl.edu
- Library Help Desk support http://cms.uflib.ufl.edu/ask
- SFFGS Academic Hub https://ufl.instructure.com/courses/303721

Student Life, Wellness, and Counseling Help
Students experiencing crises or personal problems that interfere with their general well-being are encouraged to utilize the university's counseling resources. The Counseling & Wellness Center provides confidential counseling services at no cost for currently enrolled students. Resources are available on campus for students having personal problems or lacking clear career or academic goals, which interfere with their academic performance.

- Counseling and Wellness resources http://www.counseling.ufl.edu/cwc/
- U Matter, We Care http://www.umatter.ufl.edu/
- Career Connections Center http://career.ufl.edu/
- Other resources are available at http://www.distance.ufl.edu/getting-help for online students.

Student Complaint Process
The School of Forest, Fisheries, and Geomatics Sciences cares about your experience and we will make every effort to address course concerns. We request that all online students complete a course satisfaction survey each semester, which is a time for you to voice your thoughts on how your course is being delivered.

If you have a more urgent concern, your first point of contact should be the SFFGS Academic Coordinator or the Graduate/Undergraduate Coordinator for the program offering the course. You may also submit a complaint directly to UF administration:

- Students in online courses: https://distance.ufl.edu/getting-help/
- Students in face-to-face courses: https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/

FAS4305C Course Schedule (2022)
(Order/topics of lectures, near end of course, may change)

Week	Lecture Topics	Laboratory – Thursdays (1:00 – 4:55pm)
1. Jan 6	Introduction Scientific method	Syllabus, Schedule, Lake Alice Overview Lab Organization, Teams, Rotations, Photos, Lab Methods, Notebook, Paper Guidelines
2. Jan 11, 13	Morphometry Properties of water	Lake Alice (Rotations)
3. Jan 18, 20	Geology, water chemistry Water chemistry	Lake Alice (Rotations)
4. Jan 25, 27	Limiting environmental factors Nutrients, productivity	Lake Alice (Rotations)
5. Feb 1, 3	Eutrophication / management Sampling fish	Lake Alice (Rotations)
6. Feb 8, 10	Marking and tagging **EXAM I**	Lake Alice (Rotations)
7. Feb 15, 17	Estimating fish abundance Petersen estimates / assumptions	Lake Alice - Electrofishing Computer Lab - Data Lab **(Grp 1)**
8. Feb 22, 24	Fish Lgt/Wgt - condition factors Lakes	Lake Alice - Electrofishing Computer Lab - Data Lab **(Grp 2)** **DATA LAB ASSIGNMENT DUE (Grp 1)**
9. Mar 1, 3	Lakes Pond and lake management	Lake Alice (Electrofishing / Fish Anatomy) **DATA LAB ASSIGNMENT DUE (Grp 2)** **LAKE ALICE PAPER TOPICS DUE (ALL)**
10. Mar 8, 10	**SPRING BREAK**	NO LAB!
11. Mar 15, 17	Pond and lake management Springs	Lake Alice - Electrofishing Classroom - Aquatic Plants & Inverts **LAKE ALICE PAPER METHODS DUE (ALL)**
12. Mar 22, 24	Fish diseases/parasites (Dr. Ruth Francis-Floyd) Age and growth of fish (Dr. Deb Murie)	Lake Alice - Electrofishing Classroom - Aquatic Plants & Inverts
13. Mar 29, 31	Springs Rivers	Classroom - Data Analysis / Paper Writing
14. Apr 5, 7	????? **EXAM II**	**LAKE ALICE PAPER DUE (ALL)** **LAKE ALICE NOTEBOOK DUE (ALL)** NO LAB!
15. Apr 12, 14	Fisheries Management ?????	**LAKE ALICE ORAL PRESENTATIONS**
16. Apr 19, 21	"Silver and Gold" **FINAL TAKE-HOME EXAM GIVEN OUT**	**LAKE ALICE ORAL PRESENTATIONS**
17. Apr 27	**FINAL EXAM DUE** (turn in by 1PM via Canvas)	