Instructors:
Dr. Joseph Ballenger  
*Office: MRRI Rm 163*  
*E-mail: ballengerj@dnr.sc.gov*  
*Phone Number: 843-953-9046 (office); 843-901-2730 (Cell)*  
*Office Hours: By appointment: email (preferred) or call*

Dr. Walter Bubley  
*Office: MRRI Rm 161*  
*E-mail: bubleyw@dnr.sc.gov*  
*Phone Number: 843-953-9810 (office)*  
*Office Hours: By appointment: email (preferred) or call*

Class: 5:15-6:45 PM TR, Grice 202 or MRRI 145

Description:
This course provides an introduction to the principals of (marine) fisheries science. Topics discussed include aspects of fish biology relevant to exploitation, fishing methods, fisheries management, and stock assessments. Students will participate in discussions, including fishing methods, fisheries management, stock assessment, and aspects of fish biology relevant to exploitation. Instructors expect students to participate in discussions and debates of current fisheries issues.

Prerequisites:
None

Course Objectives:
The course provides students an introduction to fisheries science. Successful completion of this course will entail the student has a working knowledge in:

- Ecology and biology of target species
- Fishing methods, and how methodology varies across stakeholder groups
- Fisheries management principles, history, strategies, and techniques
- Fisheries governance at the state, regional, national, and international levels
- Stock assessments, what they are, different types, and how they support science-based management of fisheries resources

Although the material presented in class is broadly applicable, emphasis will be on marine fisheries.

Student Learning Outcomes:
Upon completion of this course the students will have obtained basic knowledge of key components of fisheries science such as fisheries ecology, life history, technical aspects such as gear types and attributes, fisheries governance, stock assessments, etc. The knowledge should enable the students to understand and evaluate the basics of important fisheries related processes such as data collection, analysis and interpretation, stock assessments, fisheries management process and actions, fishing gear, and socio-economic and environmental aspects.

Course Materials
*Online Texts and Resources (available on-line at no cost):*

**Stock Assessments**
- **A Guide to Fisheries Stock Assessment: From Data to Recommendations** (Andrew B. Cooper): [https://repository.library.noaa.gov/view/noaa/38414](https://repository.library.noaa.gov/view/noaa/38414)

**NOAA Fisheries**
- **Fisheries Glossary** (Blackhart et al. 2006): [https://repository.library.noaa.gov/view/noaa/12856](https://repository.library.noaa.gov/view/noaa/12856)
FAO Fisheries
The State of World Fisheries and Aquaculture – 2022
https://www.fao.org/3/ap974e/ap974e.pdf)

Other important references will be handed out or emailed to the class
Textbooks (useful, but not required):
Blackwell Science Ltd. Malden, Massachusetts.
Blackwell Science Ltd. Malden, Massachusetts.
Society, Bethesda, Maryland.

Calculator
A basic scientific calculator (or computer or cell phone with capability) is required. While the course will not be
inherently quantitative in nature, to facilitate class participation and in-class assignments the instructors will ask the
students to work some limited practical examples.

Course Policies
Attendance Policy
Only students officially registered (graded or auditing) for this course may attend class. During the week following
the drop/add deadline, the professor will verify student enrollments in this course. Any student appearing on the
class roll but determined not to have attended the class even once will be removed, except for cases where a student
is absent because of quarantine or isolation due to COVID-19.

It is unquestionably expected that each student prepare for, attend, and participate in all class periods. Attendance
will be taken daily and the instructors reserve the right to include this information in determining the student’s
participation in the course and the corresponding grade impact (see “Assignments” below).

Class Participation
Aspects of this course will require students to participate in class discussions, debates, and to answer in-class
questions from instructors. The instructors use these forums to reinforce topics covered throughout the class,
particularly to relate to previous course material. Instructor’s will expect all students to participate during each class
and they reserve the right to include this information in determining the student’s participation in the course and the
 corresponding grade impact (see “Assignments” below).

Academic Integrity Statement
As members of the College of Charleston community, we affirm, embrace and hold ourselves accountable to the
core values of integrity, academic excellence, liberal arts education, respect for the individual student, diversity,
equity and inclusion, student centeredness, innovation and public mission. Congruent with these core values, the
College of Charleston expects that every student and community member has a responsibility to uphold the
standards of the honor code, as outlined in the Student Handbook. In pursuit of academic learning, you are expected
to reference the work of other scholars, and complete your own academic work, while utilizing appropriate
resources for assistance. Any acts of suspected academic dishonesty will be reported to the Office of the Dean of
Students and addressed through the conduct process. Your adherence to these practices and expectations plays a
vital role in fostering a campus culture that balances trust and the pursuit of knowledge while producing a strong
foundation of academic excellence at the College of Charleston. Any questions regarding these expectations can be
clarified by your instructor.

Honor Code
Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are
investigated. Each incident will be examined to determine the degree of deception involved.
Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. The XXF remains on the student’s official transcript for a minimum of 2 years. After 2 years, the student can petition the Honor Board for removal of the XX. The F grade will remain on the transcript. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board. Students are encouraged to read the complete Honor Code and all related processes in the College of Charleston Student Handbook: A Guide to Civil and Honorable Conduct – 2022 (https://deanofstudents.cofc.edu/honor-system/studenthandbook/student-handbook.pdf).

Students with Disabilities
The Center for Disability Services/SNAP is committed to assisting qualified students with disabilities achieve their academic goals by providing reasonable academic accommodations under appropriate circumstances. If you have a disability and anticipate the need for an accommodation in order to participate in this class, please connect with the Center for Disability Services/SNAP on the first floor of the Lightsey Center, Suite 104. They will assist you in getting the resources you may need to participate fully in this class. You can contact the Center for Disability Services/SNAP office at 843.953.1431 or at snap@cofc.edu. You can find additional information and request academic accommodations at the Center for Disability Services/SNAP website.

Students approved for accommodations are responsible for notifying the instructors as soon as possible and for contacting us one week before accommodation is needed. Preferably, the student should contact the instructors prior to the start of the first class to discuss these accommodations, where possible.

OAKS
OAKS, including Gradebook, will be used for this course throughout the semester to provide the syllabus and class materials and grades for each assignment, which will be regularly posted. Alternative means for distribution of the syllabus and class materials will occur via email. Grades will also be provided to individuals either in class or during office meetings with the instructor.

Inclement Weather, Pandemic, or Substantial Interruption of Instruction
If in-person classes are suspended, faculty will announce to their students a detailed plan for a change in modality to ensure the continuity of learning. All students must have access to a computer equipped with a web camera, microphone, and Internet access. Resources are available to provide students with these essential tools.

If one or more students are absent for an extended period of time due to COVID-19 (quarantine or isolation), instructors may, at their discretion, conduct the class exclusively online for the duration of student quarantine/isolation, record class lessons to share with students, or choose an alternate accommodation that provides the impacted student(s) with the opportunity to continue in the course. The specific accommodation will vary depending on the number of students affected, the expected duration of their absence, and the needs of the class.

Electronic devices
Allowable electronic devices such as computers to take notes will be discussed in class. Note that lectures cannot be recorded or broadcasted in any form.

Assignments
Exams
There will be two exams during the course, a mid-term exam and a final exam. Though not expressly cumulative in nature, concepts covered prior to the mid-term will be re-emphasized and built upon during the second half of the semester and as such will be available for query during the final exam. The instructors will clearly note which lectures are covered during each exam, with the materials provided in preparation, during, and after identified. Students will be responsible for reviewing associated lecture notes and lecture materials for the exams.

Any instance of make-up or early exams will be based upon pre-approval and excused absences.
**Homework**

Homework and reading assignments will be assigned at the discretion of the instructors. The reading assignments will not be taken up for grading, but it is highly recommended you complete any assigned. In particular, not completing reading assignments may impact the student’s ability to actively participate in class discussions and debates (see “Class Participation” below).

**Research Paper/Proposal and Oral Presentation**

Students will be required to write a research paper or proposal on a fishery or proposed fisheries research (details will be discussed in class). This writing assignment will be designed to test the student’s ability to integrate course concepts from throughout the class to demonstrate their acquired knowledge of fisheries science. The prose will be graded on both content and grammar with the instructors providing guidance on required content, length, and formatting in class.

Students will also provide an oral presentation covering the contents of the prose for their class peers and instructors. These will occur during regularly scheduled class times at the end of the semester. Specific requirements for the presentation will be discussed in class.

**Public Hearing or Meeting**

Students will be required to attend a public hearing or meeting related to fisheries. Appropriate meetings will be discussed in class, with ample examples provided by the instructors. To verify attendance, students will be required to write a brief (~1 page) critique of the meeting, with the exact nature of the critique varying based on the nature of the meeting attended. For example, if attending a scientific conference to satisfy this requirement, students will be asked to summarize and critique two to three presentations. If instead they attend a public hearing or meeting (e.g., technical committee meeting, SAFMC Council Meeting, SEDAR workshop, etc.), they will be asked to provide a summary and critique of one or more topics discussed during the meeting.

**Class Participation**

As mentioned elsewhere, students will be expected to actively participate in class discussions and debates throughout the semester. This is purely subjective and is based on the instructor’s knowledge of your attendance and participation.

**Evaluation/Grading**

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
<th>% of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-Term Exam</td>
<td>100</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>100</td>
<td>20%</td>
</tr>
<tr>
<td>Research Proposal</td>
<td>100</td>
<td>20%</td>
</tr>
<tr>
<td>Oral Presentation</td>
<td>50</td>
<td>10%</td>
</tr>
<tr>
<td>Public Meeting/Hearing</td>
<td>25</td>
<td>5%</td>
</tr>
<tr>
<td>Class Participation and Other Assignments</td>
<td>125</td>
<td>25%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>500</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
### Tentative Class Schedule

Class schedule and lecture topics are subject to change.

<table>
<thead>
<tr>
<th>Lecture</th>
<th>Date</th>
<th>Topic</th>
<th>Assignments Due</th>
<th>Instructor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12-Jan-22</td>
<td>Introduction - What is Fisheries Science?</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>2</td>
<td>17-Jan-22</td>
<td>Stock Identification</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>3</td>
<td>19-Jan-22</td>
<td>Fisheries Ecology I</td>
<td></td>
<td>Bubley</td>
</tr>
<tr>
<td>4</td>
<td>24-Jan-22</td>
<td>Fisheries Ecology II</td>
<td></td>
<td>Bubley</td>
</tr>
<tr>
<td>5</td>
<td>26-Jan-22</td>
<td>Age Determination</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>6</td>
<td>31-Jan-22</td>
<td>Growth &amp; Growth Models</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>7</td>
<td>2-Feb-22</td>
<td>Fish Reproduction I - Principles</td>
<td></td>
<td>Bubley</td>
</tr>
<tr>
<td>8</td>
<td>7-Feb-22</td>
<td>Fish Reproduction II - Methods</td>
<td></td>
<td>Bubley</td>
</tr>
<tr>
<td>9</td>
<td>9-Feb-22</td>
<td>Mortality I</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>10</td>
<td>14-Feb-22</td>
<td>Mortality II</td>
<td>Proposal Topic Due</td>
<td>Ballenger</td>
</tr>
<tr>
<td>11</td>
<td>16-Feb-22</td>
<td>Fishing Gear I</td>
<td></td>
<td>Bubley</td>
</tr>
<tr>
<td>12</td>
<td>21-Feb-22</td>
<td>Fishing Gear II</td>
<td></td>
<td>Bubley</td>
</tr>
<tr>
<td>13</td>
<td>23-Feb-22</td>
<td>Gathering Fisheries Data</td>
<td></td>
<td>Bubley</td>
</tr>
<tr>
<td>14</td>
<td>28-Feb-22</td>
<td>Citizen Science (Guest Speaker - Julia Byrd)</td>
<td></td>
<td>Bubley</td>
</tr>
<tr>
<td>15</td>
<td>2-Mar-22</td>
<td>US Fisheries Governance</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td></td>
<td>7-Mar-22</td>
<td>Spring Break - No Class</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td></td>
<td>9-Mar-22</td>
<td>Spring Break - No Class</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>16</td>
<td>14-Mar-22</td>
<td>Mid-Term Exam (Materials Thru Lecture 14)</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>17</td>
<td>16-Mar-22</td>
<td>Public Trust Doctrine / International Fisheries Governance</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>18</td>
<td>21-Mar-22</td>
<td>Management Options</td>
<td></td>
<td>Bubley</td>
</tr>
<tr>
<td>19</td>
<td>23-Mar-22</td>
<td>Stock Assessment I</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>20</td>
<td>28-Mar-22</td>
<td>Stock Assessment II</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>21</td>
<td>30-Mar-22</td>
<td>Stock Assessment III</td>
<td>Proposal</td>
<td>Ballenger</td>
</tr>
<tr>
<td>22</td>
<td>4-Apr-22</td>
<td>Stock Assessment IV</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>23</td>
<td>6-Apr-22</td>
<td>The Council Process: Stock Assessments &amp; Management (Guest Speaker - John Carmichael)</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>24</td>
<td>11-Apr-22</td>
<td>Tag-Recapture Studies I</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>25</td>
<td>13-Apr-22</td>
<td>Marine Protected Areas (Guest Speaker - Kim Roberson)</td>
<td>Public Meeting Paper</td>
<td>Bubley</td>
</tr>
<tr>
<td>26</td>
<td>18-Apr-22</td>
<td>Tag-Recapture Studies II</td>
<td></td>
<td>Ballenger</td>
</tr>
<tr>
<td>27</td>
<td>20-Apr-22</td>
<td>Socio-Economics of Fisheries Management</td>
<td></td>
<td>Bubley</td>
</tr>
<tr>
<td>28</td>
<td>25-Apr-22</td>
<td>Student Presentations</td>
<td></td>
<td>Both</td>
</tr>
<tr>
<td>29</td>
<td>2-May-22</td>
<td>Final Exam</td>
<td></td>
<td>Bubley</td>
</tr>
</tbody>
</table>

**NOTE:** No late assignments accepted - No exceptions!

Details for the Public Meeting, Research Proposal, and Student Presentations will be discussed in class.