**BIO 342: BIOLOGY OF THE INVERTEBRATES**
**DR. KEITH W. PECOR**

**LECTURE: M/T/W 9:00AM – 11:45AM**
**LAB: M/T/W 12:00PM – 2:30PM**
**REMOTE INSTRUCTION**

## INSTRUCTOR ACCESSIBILITY

My email address is pecor@tcnj.edu, and email is my preferred method of communication about course matters. I normally respond to messages received during the school week within 24 hours of receipt. Messages received by 5PM on the day before an exam will be answered the same day. Messages received during a weekend will be answered by the end of the first school day after the weekend. I do not check Canvas messages; use the campus email system. Office hours will be held via Zoom meetings by appointment.

## CATALOG DESCRIPTION

A detailed consideration of the functional morphology and evolution of the animal phyla from the protozoa through the echinoderms. Adaptive radiation within the major groups is discussed and the interrelationships of the various phyla are analyzed. The laboratory experience encourages individual investigations of representative animals.

Course units: 1.0
Prerequisites: BIO 185 or 201

## COURSE SYNOPSIS & LEARNING GOALS

This course will provide you with a survey of the non-vertebrate animals. These animals are quite diverse, so we will only be able to scratch the surface when discussing most groups. In addition to discussing evolutionary relationships among groups and the features that define each group, we will consider aspects of ecology, development, and reproduction. The fourth-hour requirement will be satisfied through a laboratory experience that is devoted to exploration of invertebrates in the form of prepared slides, preserved specimens, and live organisms.

After completing this course, you should be able to answer each of the following questions in a sophisticated and thoughtful way:

1. How are the relationships among invertebrate taxa determined?
2. What features are used to identify the members of various invertebrate taxa?
3. How do larval and reproductive characteristics allow us to better understand the ecology of invertebrates and the relationships among them?
4. How are invertebrates important, both ecologically and economically?

## COURSE MATERIALS

The following textbook will be used in both lecture and lab:
Pechenik, J.A. 2014. *Biology of the Invertebrates, 7th ed*. McGraw-Hill, New York, NY.

I will post the PowerPoint presentations for each lecture and the project for each lab on Canvas. Files will usually be posted the night before a given lecture or lab meeting. The PowerPoint

presentations contain information and images from a variety of sources, and much of the content is protected by copyright. As such, the files are only for your personal use in this course and are not to be shared, directly or indirectly.

## COURSE DELIVERY

The course will be delivered synchronously for lecture via Zoom, but students are not required to participate in the Zoom meetings. A video recording will be posted to a Google folder after each day's lectures for asynchronous participation and/or review. Labs will involve examination of digital photos and videos of invertebrate specimens and can be completed synchronously or asynchronously. Exams will be given at 9AM on their scheduled date.

## ASSESSMENTS & GRADING

There will six examinations (four lecture, two lab) in this course, all in the form of Canvas quizzes. You are expected to complete the exams without aids of any kind.

**Lecture Exams (400 points).** Four lecture exams will be given during the semester, and each exam will count for 100 points. Exam 4 will be given on the last day of class and will be ~ 80% new material and 20% cumulative material.

**Laboratory Exams (200 points).** Two laboratory exams will be given during the semester, and each exam will count for 100 points. The laboratory exams will be in the form of practicals, in which you will be given images of invertebrate specimens and asked to identify group membership, identify anatomical structures, and answer questions about life history.

Letter grades will be determined using the following scheme:

| Percentages | Letter Grade | | Percentages | Letter Grade |
|---|---|---|---|---|
| 100 – 93% | A | | 79 – 77% | C+ |
| 92 – 90% | A- | | 76 – 73% | C |
| 89 – 87% | B+ | | 72 – 70% | C- |
| 86 – 83% | B | | 69 – 67% | D+ |
| 82 – 80% | B- | | 66 – 60% | D |
| | | | < 60% | F |

## ATTENDANCE POLICY

TCNJ's Attendance Policy (https://policies.tcnj.edu/?p=77) states that, "Students are expected to participate in each of their courses through regular attendance at lecture and laboratory sessions. It is further expected that every student will be present, on time, and prepared to participate when scheduled class sessions begin." For this remote course, there will be some synchronous elements and some asynchronous elements. **You are only expected to be present for the synchronous administration of exams.**

## ACADEMIC INTEGRITY

All activities in this course are governed by TCNJ's Academic Integrity Policy (https://policies.tcnj.edu/?p=130). Any actions that are determined to be violations of the Policy will result in a penalty in keeping with the severity of the violation. If you have any questions about matters of academic integrity, please discuss them with me. Also, visit http://academicintegrity.pages.tcnj.edu for more information about academic integrity at TCNJ. As the saying goes, an ounce of prevention is worth a pound of cure.

## AMERICANS WITH DISABILITIES ACT

TCNJ's policy with respect to students and employees with disabilities can be found at the following URL: http://policies.tcnj.edu/policies/digest/digest.php?docId=9206 Every effort will be made to provide reasonable accommodation for any student with a condition covered by the Americans with Disabilities Act (ADA). If you are entitled to accommodations under the ADA, please let me know by 21 July 2021, and I will work with the Accessibility Resource Center (https://arc.tcnj.edu) to make the necessary accommodations.

**SCHEDULE***

| DATE | LECTURE TOPIC | READING** | LAB |
|---|---|---|---|
| 19 Jul | Classification and Relationships<br>Macroevolution | Chapter 2 | None |
| 20 Jul | "Protists" 1 & 2 | Chapter 3 | "Protists" |
| 21 Jul | Porifera and Placozoa<br>Cnidaria and Ctenophora | Chapter 4<br>Chapter 5-7 | Porifera, Cnidaria, & Ctenophora |
| 26 Jul | Exam 1 | None | None |
| 27 Jul | Platyhelminthes<br>Gnathifera and Nemertea | Chapter 8<br>Chapter 10-11 | Platyhelminthes and Gnathifera |
| 28 Jul | Mollusca 1- 3 | Chapter 12 | Mollusca |
| 2 Aug | Exam 2 | None | None |
| 3 Aug | Lab Exam 1 | None | None |
| 4 Aug | Annelida 1 & 2 | Chapter 13 | Annelida |
| 9 Aug | Arthropoda 1 & 2 | Chapter 14 - 15 | Arthropoda 1 |
| 10 Aug | Arthropoda 3 & 4 | Chapter 14 - 15 | Arthropoda 2 |
| 11 Aug | Exam 3<br>Cycloneuralia and Lophophorata | None<br>Chapter 16 - 19 | None |
| 16 Aug | Echinodermata, Hemichordata, and Chordata | Chapter 20 - 23 | Cycloneuralia thru Chordata |
| 17 Aug | Lab Exam 2 | None | None |
| 18 Aug | Exam 4 | None | None |

* Schedule is subject to change as needed.

** Chapters are from Pechenik's *Biology of the Invertebrates*, *7th ed*.