



Appledore Island, Isle of Shoals, Kittery, Maine

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Shoals Marine Laboratory Introduction to Scientific Illustration (BIOSM 1140) Summer 2026

Course Syllabus and Schedule

Faculty: Carol Schwartz (csillustration@gmail.com)

Prerequisites: none

Class enrollment limit: 12

Credit hours: 2 credits

*Students will receive a minimum of 4 hours of mentored instructional time per day to meet the requirements for 2 credits. $[(240 \text{ min/d} * 7\text{d})/750 = 2.24 \text{ cr minimum}]$*

Description of the Course:

This one-week introductory course covers basic skills needed for scientific illustration using visual opportunities found around Appledore Island (Shoals Marine Lab). Instruction provides foundational knowledge for visual science communication, with significant time devoted to observational drawing, including key features of subjects like size comparisons and basic shapes. Students are encouraged to practice and experiment using a variety of media including graphite, pen & ink, colored pencil and watercolor to complete a project using each medium. These four assignments take advantage of the unique nature of the coast for finding inspiration and reference, including locations and subjects found around the island and live specimens housed in sea tables. The course is designed to allow students with any art background to succeed with their drawing ability.

No forbidden overlap: The proposed illustration class is aimed at beginners and is intended for high school students. Shoals also has a potential follow-up class (Biological illustration, BIOSM 2040; for college students), which is more advanced with opportunity for more scope/depth due to its longer duration. Both classes are taught by the same instructor who is aware of forbidden overlaps and has designed the current course specifically as an introduction to scientific illustration concepts.

Student Learning Outcomes:

Students taking this course will be able to:

- Apply skills in observational illustration to analyze and distinguish details that are needed to communicate a particular natural science concept.

- Produce accurate and clear scientific illustrations in a variety of media and materials.
- Demonstrate knowledge of composition, color, and tonal values in their illustrations.
- Recognize how visual science communication can be incorporated into the service of science.

Course Materials:

Please bring the following materials with you.

- Colored pencil set - Prismacolor Premier Colored Pencils set of 12
- Sketchpad, 9" x 12" - Strathmore 400 Series Spiral Bound Sketch Pad or similar

The following items will be provided.

- Drawing pencils - Faber-Castell 9000 Pencil size 2H and 4H, Castel 9000 Art Set (includes 2B, 4B, 6B, sharpener and eraser)
- Kneaded eraser
- Dip pen and nibs - Speedball Standard Pen Holder, Zebra Dip Pen Nib-G Chrome, pack of 10 order from <https://www.jetpens.com/> for good pricing
- Watercolor Brushes - Raphael Stradivarius Synthetic Kolinsky Sable Brush - Round, Size 0 and size 4, Short Handle
- Paint palette - Richson 8-Well Slant Mixing Tray or similar
- Dr. Ph.Martin's Black Star waterproof India Ink
- Watercolor or gouache paints set
- Tracing paper
- New York Central or Fluid 100 watercolor block, cold press, 9" x 12"
- *The Guild of Natural Science Illustrators Technique Sheet*

Assignments & Grading:

Students are assigned 4 projects working with four different media. Grades will be evaluated based on the use of knowledge presented in the course and demonstrated in project artworks.

Professionalism is also part of the overall grade and includes attendance, student participation and personal involvement in course activities, meeting deadlines, and how well work is presented.

Success at Shoals requires a positive attitude and a willingness to accept changes in the schedule with grace. Island living demands respect for your fellow classmates, and residents on Appledore. Students are expected to actively participate in all facets of this course, and to display good citizenship while at Shoals.

Assignment 1, Graphite Drawing of Marine Species	20%
Assignment 2, Pen and Ink Drawing of Bony Fish Species	20%
Assignment 3, Colored Pencils Botanical Illustration	20%
Assignment 4, Watercolor Ornithological Illustration	20%
Participation and Professionalism	20%

Cornell student grading scale	
100 – 98.00	A+
97.99 - 94.00	A
93.99 - 90.00	A-
89.99 – 87.00	B+
86.99 – 83.00	B
82.99 – 80.00	B-
79.99 – 77.00	C+
76.99 - 73.00	C
72.99 - 70.00	C-
69.99 - 67.00	D+
66.99 - 63.00	D
62.99 - 60.00	D-
< 59.99	F

Grading Scale

Participation: Success at Shoals requires a positive attitude and a willingness to accept changes in the schedule with grace. Island living demands respect for your fellow classmates, and residents on Appledore. Students are expected to actively participate in all facets of this course, and to display good citizenship while at Shoals. **20%** of your grade will be based on the faculty's subjective evaluation of your personal involvement in course activities. If you have any questions or comments about the course, please contact the instructors directly.

Expectations and Conduct:

Students are responsible for fully understanding all of the information presented in this syllabus. If there are any questions regarding this information, it is the student's responsibility to bring it to the instructor's attention. In addition, students are responsible for attending all activities associated with this course and completing all assignments. Students are responsible for asking questions anytime they need clarification (remember, there is no such thing as a bad question).

Every student is responsible for their own behavior- specifically in being respectful and collegial to other students and with instructors. Students are responsible for fully understanding and adhering all of the information presented in the *Appledore Island Handbook*

1. *Personal Technology.* Do not use cell phones or similar devices in the classroom or during course activities. If you take notes with your computer or tablet, disable wireless access during lecture.
2. *Computer Facilities.* The lab has a modest computer facility in Loughton Library; please treat this shared facility with respect. Printers are available, but please limit printing to your FINAL document (if required).
3. *Transmission of Course Materials.* Students are not authorized to replicate, reproduce, copy or transmit lectures and course materials presented, or derivative materials including class notes, for sale or free distribution to others without written

- consent of the instructors who are the original source of the materials.
4. **Academic Integrity.** Any work submitted must be your own. Uncredited use of another person's words, data or images is considered plagiarism, a serious violation of the Code, whether the material comes from another student, a web site, or a published paper. Students must adhere to Cornell's and UNH's Policy for Academic Honesty/Plagiarism and Discrimination
 - i. Cornell: <http://cuinfo.cornell.edu/aic.cfm>
 - ii. UNH: <http://www.unh.edu/vpsas/handbook/welcome-university-new-hampshire>
 5. **Disabilities & ADA Accommodation:** Students with a disability must contact Cornell's (420 CCC building; 607-254-4545) or UNH's Student Disability Services (<http://www.unh.edu/disabilityservices>) four weeks prior to start of class for confidential discussion of needs and for registration to verify eligibility for academic accommodations. No retroactive accommodations can be made.
 6. **Mental Health:** Shoals Marine Laboratory cares about you and your well-being. If you experience unusual personal or academic stress during the course or need to talk with someone about a personal problem, seek support from your instructors as soon as possible. In addition, any SML staff is available for consultation 24/7. Find staff in the office in the Hamilton House between 8am – 7pm or knock on the door of Bartels House after hours

Arrival Information

Arrive at the SML dock (315 Market Street, Portsmouth, NH).
Please note there is *NO* parking available at the SML dock; pick-up/drop-off only.
See email sent by SML for arrival and parking information.
Check-in with SML staff at the SML dock.
Unload luggage from vehicle(s) and load onto SML vessel.

Schedule:

Tentative, may change at instructor's discretion, boat availability, opportunities that occur synergistically with other classes or groups on the island, etc.

Meals:

Mon-Sat: Breakfast = 7:30am, Lunch = 12:30pm, Dinner = 6:00pm
Sun: Brunch = 10:00am, Dinner = 5:00pm
Island quiet hours: 10:00pm-7:00am

Meals in blue, Field Trips in orange

Day 1

Arrive at SML dock in Portsmouth (315 Market Street, Portsmouth, NH).
Depart Portsmouth en route to Appledore Island (trip duration = ~90 minutes)
Approximate arrival to Appledore Island
Gather on Kiggins Commons deck for Island Welcome and Orientation led by SML Staff.
Luggage will be delivered to dorms by SML staff while students are in the Commons
Participants shown to their dorm room, unpack and settle in
Class introduction, syllabus, materials, questions in PK Lab
Review lab policies and safety guidelines for Loughton and PK lab spaces

Observational Drawing Best Practices, Introduction to Graphite Pencil Basics
Introduction of Assignment 1 Graphite--Drawing a marine species,
Select subject and start on graphite drawing with emphasis on observational drawing

Day 2

07:30 - 08:00 Breakfast
08:15 - 10:00 Island walk
10:00 - 12:30 Work on graphite drawing
12:30 - 01:00 Lunch
01:00 - 06:00 Work on graphite drawing
06:00 - 06:45 Dinner
07:00 - 09:00 Assignment 1 Graphite marine species due, Critique

Day 3

07:30 - 08:00 Breakfast
08:00 - 12:30 Introduction of Assignment 2, Pen & Ink, Bony Fish
Presentation and Techniques Demo, practice mark making
Select fish for pen & ink assignment and create sketch, discuss sketches, take photo of fish, work on project
12:30 - 01:00 Lunch
01:00 - 05:00 Continue to work on pen & ink assignment
05:00 - 06:00 Hike around island
06:00 - 06:45 Dinner
07:00 - 09:00 Assignment 2 pen & ink fish due, critique

Day 4

07:30 - 08:00 Breakfast
08:00 - 9:45 Intro of Assignment 3, Colored Pencils ornithological Illustration
Presentations: Bird Anatomy and Design, The Artful Bird
Presentation: Colored Pencils Techniques
Demo: colored pencils on paper
10:00 - 02:00 Whale Watch Field Trip!
02:15 - 05:00 Work on colored pencil bird species assignment
06:00 - 06:45 Dinner
07:00 - 10:00 Work on colored pencil bird species assignment

Day 5

07:30 - 08:00 Breakfast
08:00 - 12:30 Work on colored pencil bird species assignment
Presentation: Intertidal Species
Intertidal field trip to for sketching (wear shoes that can get wet)
12:30 - 01:00 Lunch
Work on colored pencil bird species assignment
Assignment 3, colored pencil bird species due, critique
06:00 - 06:45 Dinner
07:00 - 10:00 Intro to Assignment 4, Presentation: Botanical Illustration
Presentation & Demo: Watercolor Techniques and Mixing Color
Practice mixing paint and using watercolors, create sketches, discuss

Day 6

07:30 - 08:00 Breakfast
08:00 - 12:30 Start on botanical watercolor assignment
12:30 - 01:00 Lunch
01:15 - 04:00 Neuston tow and plankton viewing/sketching in PK after
04:00 - 06:00 Work on botanical watercolor assignment
06:00 - 06:45 Dinner
07:00 - 10:00 Work on botanical watercolor assignment

Day 7

10:00 - 11:00 Brunch
11:00 - 03:00 Work on botanical watercolor assignment
03:00 - 04:00 Hike
04:00 - 05:00 Assignment 4, botanical watercolor due, critique
05:00 - 05:45 Dinner
07:00 - 09:00 Scientific Illustration Exhibition

Day 8

07:30 - 08:00 Breakfast
Pack up and leave luggage outside dorm
Depart SML/arrive Portsmouth