

Aquatic Entomology Syllabus
ENT/BIOL 4354 (4 credit hours)
Spring 2020

Instructor: Sally Entekin

Office: Price Hall 319

Email: sallye@vt.edu (best and preferred way to contact me)

Virtual Office hours: Monday 2:15-4:30pm and by appointment via email, text or zoom

Personal Zoom Account: <https://virginiatech.zoom.us/j/8164163756>

Cell phone number: 501-269-2108

Teaching Assistant: Kelly McIntyre

Office: Price Hall 301C

Email: mcintyre@vt.edu

Virtual Office hours: Tuesday 3 -4 pm or by appointment as needed

Kelly Zoom Account: <https://virginiatech.zoom.us/j/161900493>; Meeting ID: 161 900 493

Teaching Assistant: Joe Girgente

Email: joseph92@vt.edu

Virtual Office hours: Friday 3 - 5pm or by appointment as needed

Joe Zoom Account: <https://virginiatech.zoom.us/j/270033891>; Meeting ID: 270 033 891

Lecture Meeting: MWF 1:25-2:15 PM, Seitz 313

Laboratory Meeting: W or F 2:30-5:15 PM, Price Hall 221

All materials will be available on-line beginning March 23rd. You will be able to access the material and download it. I will also be holding live streaming events so students that can will be able to interact with me and the material during our scheduled lecture and lab times.

Textbook: R.W. Merritt, K.W. Cummins, and M.B. Berg, 2008, An Introduction to the Aquatic Insects of North America, 4th edition, Kendall Hunt Publishing Company (MCB)

Course Description: This course emphasizes the biology (morphology, physiology, anatomy, behavior, origin, and distribution), life history, ecology, taxonomy, nomenclature and evolutionary relationships among the aquatic insect orders. The lab will emphasize collecting techniques, identification, and curation of aquatic insects. A collection is required.

Revised Course Objectives and expectations: Upon successful completion of this course students will be able to:

1. Describe aspects of the *biology* of individual aquatic insects:
 - a) habitat preferences (*where they live*)
 - b) trophic relations (*what and how they eat*)
 - c) habits/modes of existence (*how they stay put and disperse*)
 - d) life history (*big life events and their timing like hatching, reproducing, emerging*)

2. Demonstrate knowledge of the *taxonomy* of aquatic insects:
 - a) identify all organisms to a very fundamental taxonomic level (order) on sight
 - b) identify common organisms to an intermediate taxonomic level (family) on sight
 - c) identify all organisms to an intermediate taxonomic level (family), and some to an advanced level (genus), with taxonomic keys and microscope-will not be possible after 16March2020

3. Demonstrate methods that are currently used for:
 - a) collecting
 - b) preserving
 - c) curating
4. Describe some of the basic ecological interactions involving aquatic insects and their environment and among other freshwater macroinvertebrates and why that information is important for solving problems in environmental degradation and for natural resource management.

Expectations for the course

- Students are expected to review each lecture and complete the questions provided in each lecture and also generate their own questions.
- Laboratory will require reviewing the lecture videos, answering the questions posed during the video, and a final project.
- The lab final project will be the completion of an aquatic insect and their relatives collection or virtual project. However, the grade will be based on effort rather than correct identification as long as students identify the correct Order and families are not duplicated

Your instructor, Sally Entrekin, will be required to provide a pre-recorded lecture and laboratory that will be available for you to view at any time during the time leading up to each lecture or laboratory. The students will be expected to review the pre-recorded lecture and answer the questions within each lecture prior to the next lecture posting that will follow the course schedule. For example, Monday's lecture will be posted before Monday, Wednesday's lecture will be posted on Tuesday, and Friday's lecture will be posted on Thursday. Laboratory can be completed any time from Wednesday morning to Friday evening. All laboratory assignments should be completed and turned in by **6pm on Friday** of each week.

Expectations for the Learners

Your instructor expects you to still achieve the stated objectives above. The main difference in the on-line course is:

1. Students will view lecture and laboratory videos on their own time and be responsible for answering the questions posed in each lecture and laboratory video.
2. Students will go out and collect aquatic insects if they so choose. If students need any help with their field work, please contact your instructor via the [zoom personal link](#) or personal cell phone 501-269-2108.
3. Students will be responsible for turning in an aquatic insect collection of actual specimens and/or images OR a PowerPoint presentation detailed in a separate file that is saved on Canvas and that will be uploaded in Canvas. Students will NOT be graded on their correct insect identifications. Students WILL be graded on the curatorial quality and effort in turning in all required specimens as detailed below.

Grading: Course grades will be earned based on the following points:

Letter grade	Percentage	Points	Letter grade	Percentage	Points
A	92	510	C	72	399
A-	90	500	C-	70	388
B+	88	488	D+	68	377
B	82	455	D	62	344
B-	80	444	D-	60	333
C+	78	433	F	≤59	≤327

Commented [1]: Students, please note that the points have changed in the class because we are not able to give you a final laboratory practical. Your points will come instead from participation: answering the questions within the lecture and lab Power Points and turning them in to me by the due date.

Evaluation:

Lecture		
	Test 1	35
	Test 2	100
	Test 3	90
	Test 4	85
	Pop Quizzes (15@3 pts). So far 5 total points. Can earn additional 25 points by completing the questions for each lecture posted. That's ~3pts per lecture (13 left).	~40 pts turned in by the students at the end of the lecture viewing.
Lab	Collection	165 will be based on effort rather than correct identification as long as students identify the correct Order and Family level is not duplicated
	Quizzes(6@5pt)	30 Quizzes will still be administered and handed in at the end of the laboratory viewing.
	Unknowns (10@1pt)	10 Will still be given and graded for the correct order and family
Total		555
Students can earn up to 570 points, but the final grade is based on 555 points, so 20 extra credit points are possible.		

Aquatic Insect Collection: Specific requirements for student collections are as follows:

Minimum number of taxa required for each insect order:

Order	Number of taxa Undergraduate	Number of taxa Graduate
Ephemeroptera	8	11
Odonata	6	9
Plecoptera	7	11

Hemiptera	3	5
Megaloptera	2	3
Coleoptera	5	8
Trichoptera	7	11
Diptera	6	10
Other macroinvertebrates	6	7
Total taxa	50	75
Points each	3	2
Subtotal points	150	150
Technique points	15	15
Total points	165	165

Adults and immatures of the same taxon (except Hemiptera) are counted as 2 separate taxa (with some exceptions). Pupae may not be included in collections. Only one vial of a taxon, with all specimens collected from the same place on the same date, may be turned in (*i.e.*, only 50/75 vials may be turned in). No points will be awarded if a taxon is replicated or misspelled on labels or the collection index. The remaining 40 points are awarded for curatorial and laboratory technique. Specific criteria for curatorial points include: **(1)** neat, legible, and appropriately sized labels with all required information (genus names italicized), **(2)** appropriately sized vials with an adequate amount of preservative – small specimens in oversized vials will not be awarded points, **(3)** organization – taxa must be easy to locate and the collection index must have taxa spelled and italicized correctly and listed in phylogenetic order, and **(4)** multiple specimens of the same taxon. **(5)** Image resolution and proper image cropping to highlight specimen. Detailed instructions on preserving, labeling, and organizing collections are provided in the handout titled 'Insect Collection Guidelines'.

Students are encouraged to collect specimens together, but taxonomic work on collections must be performed independently — all specimens must have been identified by the student turning in the collection. There will be no exchanges of taxa or taking specimens from previous collections (*i.e.*, collections from other courses, consulting agencies, research projects, etc.). If several students collect in a particular habitat at the same time, the catch may be divided up. Specimens belonging to the Department of Entomology must be kept distinctly separated from the required collections of students. Collections are due by 6:00 PM on dates specified on the course schedule — 20% of your final earned points will be deducted for each day your collection is late. Given the substantial amount of time required to grade collections, late collections will not be accepted four days beyond the due date.

Collecting equipment and materials for curation (vials, alcohol, and collection containers) will be loaned to each student. Students will be issued enough vials and trays for the required collection, which will become the property of the Department of Entomology. Preservative and labels will be provided to students. Students who wish to keep their collection must obtain their own collection containers. All loaned equipment is due back to the Department by the date specified on the course syllabus. If equipment is lost, then students will be charged for the replacement of new equipment.

Helpful links for macroinvertebrate descriptions and identification:

USGS macroinvertebrate digital reference collection of North America:

<https://sciencebase.usgs.gov/naamdr>

General macroinvertebrate information: <https://bugguide.net/node/view/15740>

Honor System:

The Undergraduate Honor Code pledge that each member of the university community agrees to abide by states: "As a Hokie, I will conduct myself with honor and integrity at all times. I will not lie, cheat, or steal, nor will I accept the actions of those who do."

Students enrolled in this course are responsible for abiding by the Honor Code. A student who has doubts about how the Honor Code applies to any assignment is responsible for obtaining specific guidance from the course instructor before submitting the assignment for evaluation. Ignorance of the rules does not exclude any member of the University community from the requirements and expectations of the Honor Code. For additional information about the Honor Code, please visit: www.honorsystem.vt.edu.

Services for Students with Disabilities

If you need adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible. Additional information regarding Virginia Tech's policies may be found at: <http://ssd.vt.edu/>.

See the updated file about the final laboratory project that describes the final student project that will be worth 165 points. Also note that the laboratory practical has been removed from this course because of the limitation in microscope access. See the revised course schedule.