

# Scientific Illustration of Insects

**ENT 5051**

3 credits

Fall Semester, 2008

Tuesday — **6:00–7:30 PM** lecture, 490 Hodson Hall, St. Paul Campus

Thursday — **6:00–9:30 PM** studio, 485 Hodson Hall, St. Paul Campus

Beginning **October 21st, 6:00–9:30 PM**, Tues/Thurs, computer illustration in 336 McNeil Hall

**Instructor:** Ralph Holzenthal, holze001@umn.edu, 316 Hodson Hall, 612-624-7728

**Teaching Assistant:** Haude Levesque, leves006@umn.edu, 132 Hodson Hall, 612-626-4964

**Intended Audience:** This course is intended for any student in the natural sciences or humanities interested in scientific illustration. It is open to upper division undergraduate students as well as graduate students. Non-traditional students, artists, and professional illustrators are also welcomed. While the focus will be on technical illustration of insects, students need no prior background in entomology, but only an interest and appreciation for natural history and art. Techniques and skills gained in the course should be transferable to other organisms besides insects. Aptitude and experience in drawing and illustration is highly beneficial, but no prior coursework is required.

**Course Description:** Insects are the most diverse group of organisms on Earth with almost 1 million described species. They come in a remarkable array of sizes, colors, shapes, and textures. Taxonomists use the complexity of insect morphology as the primary means of identification, but also for inferring evolutionary relationships. Accurate illustration of characters is critically important in describing insect diversity, especially of the 1000s of new species being discovered.

This course will begin by covering techniques for preparing and observing insects for subsequent illustration. Illustration will begin with traditional techniques using the drawing tube and ocular grid on the microscope. These techniques include pencil sketching and pen and ink line drawing. Other “traditional” rendering methods will include line and ink, stippling, and crosshatching; in addition, scratchboard, coquille board, and carbon dust will be discussed, but not covered in detail. Techniques of color illustration will also be discussed. The major emphasis of the course will be in computer-assisted techniques of scientific illustration using Adobe Illustrator® and Adobe Photoshop®, including instruction on preparing full habitus color illustrations of insects on the computer. The use of digital photography, microscopy, and photomontage will also be covered and well as issues regarding traditional and electronic publication of illustrations. Lectures and mini-workshops by local scientific illustrators may also be arranged.

**Enrollment limit:** 15 students.

**Material required:**

Art supplies: A complete list of required materials will be handed out on the first day of class. These will include pencils, erasers, technical pens, ink, paper, illustration board, etc.

Software: Access to computers and software will be available through the University computer lab in McNeil Hall during the scheduled class time. Primary software used in the course will be Adobe Illustrator CS3® and Adobe Photoshop CS3® (earlier “Creative Suites” versions CS or CS2 will also function perfectly well, but Photoshop Elements® or other “lite” versions are not adequate for our needs). Students may wish to purchase their own copies of the software for use on their personal computer, **but this is not required**. Both Mac and PC versions are available (the files, but not the software versions, are cross compatible). Make sure your computer has adequate speed and memory to run these applications efficiently (see the system requirements of the software). Students enrolled in the course can purchase

the software through the U of M Techmart at a reduced cost. **Contact the instructor for advice before purchasing software or for other computer related questions.**

Other supplies: A **USB flash** drive is highly recommended.

**Textbook OPTIONAL:** Hodges, Elaine R.S. (editor). 2003. *The Guild Handbook of Scientific Illustration, Second Edition*. John Wiley & Sons. Hoboken, New Jersey. 623 pp. \$140

This is the “industry standard” in scientific illustration. It is an expensive book, but well worth the investment. Check the web for used or reduced priced copies. Make sure you get the **2nd edition** (black cover)! The 1st edition (green cover) of the “Guild Handbook” may still be available through used book dealers. It is substantially the same as the 2nd edition, but lacks an important chapter on computer illustration as well as other updated information.

**Course goals and objectives:** The course will introduce the student to the diversity and complexity of insects. They will gain an appreciation of the importance of good illustrations in insect taxonomy. Students should leave the course with sufficient skills to produce publishable scientific illustrations of insects in both traditional and computer-assisted media.

**Course expectations:** The course will consist of Tuesday night lectures introducing the student to general topics or specific techniques followed on Thursday nights by hands-on “studios” where students will develop and practice their skills. The instructor will guide and critique the students’ progress throughout the course. Students are expected to attend all lectures and spend full class time in the studio. Additional time outside of class will be required to complete assignments. Access will be provided to the studio, microscopes, specimens, and other material and equipment outside of class time by prior arrangement.

**Assignments and grading:** There will be no exams, readings, or written assignments. Grading will be based on **6 specific illustration assignments**, consisting of:

- 1 Detailed, taxonomically accurate **pencil sketch** of an insect of the student’s choice.
- 2 A traditional **pen and ink weighted line** illustration of either the previously rendered pencil sketch or another species of the student’s choice.
- 3 A traditional **pen and ink stippled (or crosshatch) illustration** of a different insect of the student’s choice.
- 4 An **Adobe Illustrator weighted line** illustration of a different insect of the student’s choice.
- 5 An **Adobe Illustrator gradient mesh** illustration of a different insect of the student’s choice.
- 6 An **Adobe Photoshop “painting”** of a different insect of the student’s choice.

Each of the first 5 assignments, due periodically throughout the course, will be worth 20 points. They will be graded on both scientific accuracy as well as “artistic” quality. The instructor will work closely with the students during the preparation of these assignments.

The final, 6th assignment will be worth 50 points and will be due on the scheduled final exam for the course.

Final grade will be determined as a percentage of points earned on the individual assignments divided by total points (150).