Biology 811 – Scientific Illustration (3 cr. hrs.) E

An introduction to the discipline of scientific illustration. Students will learn the fundamental principles of creating effective illustrations for the purpose of communicating science. A limited set of media types will be explored. The main focus will be on creating the best images for use in research, teaching, journal publications, presentations, and other applications. Copyright and other legal issues will also be discussed. Prerequisites: basic knowledge of biological concepts; artistic ability not required.

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Office Hours: Mon., Wed., Thur. 9-10 am or by appointment

Course Objectives

The student outcome objectives for this course are to 1.) become familiar with the discipline of scientific illustration, 2.) learn how images are used to effectively communicate science, and 3) acquire skills for creating images for education or research purposes.

One of the primary purposes of this course is to become familiar with the discipline of scientific illustration. Scientific illustration is an enormous field of study spanning all of the various disciplines of science (biology, chemistry, physics, earth science, astronomy, etc.) as well as most of the diverse media types used by modern artists (graphite, ink, colored pencil, watercolor, acrylic, digital, etc.). It is, of course, virtually impossible to cover all aspects of this vast discipline in the duration of a one semester course. We will focus our attention on the basic principles that apply to all scientific illustrations, the qualities that make an image effective, copyright laws and other legal issues, and the production of science illustrations. Throughout this course, we will be using three primary media types: continuous tone (graphite pencil), black and white (technical pen), and color (colored pencils). Limiting our number of media types will allow us to explore them in greater detail and to acquire a degree of proficiency in each technique. Even though scientific illustration covers the entire gamut of science, we will focus our attention on the field of biology. The format of this course will probably seem very different compared to other science courses you have taken. There will be little emphasis on exams, papers, written assignments, and other traditional forms of assessment. This course is very project oriented. The majority of points awarded will be for the original illustration projects you create.

Required Materials

Graphite media:

Drawing pencils – medium (HB), hard (6H or 4H), soft (4B or 6B)
Eraser
Drawing paper 9"x 12" (pad or single sheets)

Pen and ink media:

Technical pens – any brand (Zig, FaberCastell, Staedtler, Rapidograph, etc.) with fine points of various sizes (0.2 – 0.65 mm) (PITT artist pens, Micron, and Copic are very good!; ~~Nanoliner)~~
Bristol board 9"x 12" pad or single sheets (Strathmore smooth 300 series, etc.)

Colored pencil media:

Colored pencils (Prismacolor, Derwent, Faber-Castell, etc.) ~~watercolor~~
Drawing paper 9"x 12" (pad or single sheets)

Optional Materials

Sketchpad

Books:

Hodges, E. R. S. 2003. The Guild Handbook of Scientific Illustration, 2nd Ed. John Wiley & Sons, Inc. Hoboken, New Jersey.
Wood, P. 1994. Scientific Illustration, 2nd Ed. John Wiley & Sons, Inc. New York.

Assignments & Grading

Assignment	**Points**
3 Sketches (10 pts. each)	30
1 Exam	50
3 Technique Assignments (30 pts. each)	90
4 Discussion Assignments (20 pts. each)	80
4 Illustrations (100 pts. each)	400
1 Final Illustration	200
TOTAL =	**850**

98-100%	A+
92-97%	A
90-91%	A-
88-89%	B+
82-87%	B
80-81%	B-
78-79%	C+
72-77%	C
70-71%	C-
68-69%	D+
62-67%	D
60-61%	D-
<60%	F

Course Format

Lectures – Lectures will cover basic principles of scientific illustration as a discipline. We will discuss all of the major media types and scientific subjects, qualities of effective scientific illustrations, and important legal issues. Some lectures will cover technique demonstrations and the application of the different media types we will be exploring throughout the semester.

Canvas Discussions – We will have critical discussions of published scientific illustrations as a means of understanding what makes an image effective at communicating science.

Features of Effective Scientific Illustrations:

Communicative ability – This is the most important aspect of any scientific illustration. Your image must be effective at communicating a specific scientific concept. Concepts may include, but are not limited to: processes, species identification, form and function, scientific equipment, laboratory procedures, etc.

Design complexity – Your illustration must contain a certain level of detail in order for it to be informative and interesting. Figures that are too simple lack scientific merit.

Scientific accuracy – A scientific illustration must be scientifically accurate. Details are extremely important in science. Science builds upon itself. Inaccurate images, just like inaccurate words, can lead us to incorrect explanations about the natural world.

Aesthetic appeal – There is no reason why a technically accurate illustration cannot also be aesthetically appealing. An image that looks interesting to the viewer attracts attention and curiosity, and therefore increases its communicative potential.

Students with Disabilities or Those Who are Pregnant

Students with disabilities or those who are pregnant are encouraged to contact me for a confidential discussion of their individual needs for academic accommodation. It is the policy of the University of Nebraska at Kearney to provide flexible and individualized reasonable accommodation to students with documented disabilities or those who are pregnant. To receive accommodation services for a disability, students must be registered with UNK Disabilities Services Coordinator, David Brandt, in the Academic Success Office, 163 Memorial Student Affairs Building, 308-865-8214 or by email brandtdl@unk.edu. For those needing accommodation due to pregnancy, you need to visit with Student Health. The following link provides information for students and faculty regarding pregnancy

rights. http://www.nwlc.org/resource/pregnant-and-parenting-students-rights-faqs-college-and-graduate-students
Attached is the link to the above statement for your convenience.
http://unkcms.unk.edu/offices/disability_services/

Reporting Student Sexual Harassment, Sexual Violence or Sexual Assault
Reporting allegations of rape, domestic violence, dating violence, sexual assault, sexual harassment, and stalking enables the University to promptly provide support to the impacted student(s), and to take appropriate action to prevent a recurrence of such sexual misconduct and protect the campus community. Confidentiality will be respected to the greatest degree possible. Any student who believes she or he may be the victim of sexual misconduct is encouraged to report to one or more of the following resources:
Local Domestic Violence, Sexual Assault Advocacy Agency 308-237-2599
Campus Police (or Security) 308-627-4811
Title IX Coordinator 308-865-8655
Retaliation against the student making the report, whether by students or University employees, will not be tolerated.

Veterans Services. UNK works diligently to support UNK's military community by providing military and veteran students and families with resources and services to help them succeed. Veterans Services assists with the GI Bill process and acts as a liaison between the student and the Veterans Administration. If you need assistance or would like more information, please contact Lori Weed Skarka at 308-865-8520 or unkveterans@unk.edu.