Biomedical Graphics  HTH SCI 3EE3  
Winter 2017

Instructors
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MUMC 1R7 (Education Program in Anatomy)
Office hours: Between class/lab or by appointment only

Course Dates & Location
Lectures: Thursday  4pm-5pm  MUMC 1R14
Labs: Thursday  6:00pm-9:00pm  Lyon's New Media Center, 3rd floor, Mills Library

Required Text / Equipment
Text: N/A
Equipment: One Wacom Intuos5, Wacom Bamboo, Monoprice tablet available at MacMicro, or Monoprice.com; various art supplies to be discussed in week 1, sketchbook, selection of drawing pencils.

Course description
Visual media plays an important role in healthcare, scientific communications and education. The task of pairing visual media with text to support one or the other in publications or presentations has never been so easy. However, ease and availability do not equal efficacy. Visual media for use in the biomedical sciences is most effectively produced by skilled designers or artists who know both their content and their target audiences very well.

This course will give the student skills and insight into how visual media is developed for healthcare communications and science education. As an “art class for science students”, it will teach the student visual literacy including the artistic and design fundamentals used in creating effective visuals to convey information to a variety of audiences. Through lectures, hands-on labs and assignments, the student will become competent in Adobe Photoshop, and Illustrator, creating quality illustrations and publications that present complex ideas and data in clear, novel ways. The student will be able to employ these skills to great effect in both their future academics and careers. It is also hoped that through the process of creating artwork, the student is afforded a meditative time to reflect and develop skills in observation and empathy.

A strong emphasis will be placed on ‘doing’ as the majority of assignments will involve the student producing original artwork. Though no real artistic talent is required to be successful in this course, a clear demonstration of effort certainly is. Students must physically be able to draw and should be comfortable in the human anatomy lab.
Course objectives

- Become familiar with the historic traditions of scientific and biomedical illustration.
- Gain a demonstrable knowledge of conventions used in scientific illustration.
- Gain visual literacy and enhance observational skills.
- Assess and empathize with a target audience.
- Gain knowledge of the fundamental elements of design (structure, color theory, typography etc) and to employ them effectively.
- Enhance problem solving skills - think visually!
- Be able to critically analyze illustrations and figures used in scientific and biomedical communications.
- Become competent in basic software used to produce visual media.
- Modestly improve students’ drawing and rendering skills.

Evaluation

Minor Assignments:  
1. Shape and Shadow 5%  
2. Science Zine 5%  
3. Resume Redesign 5%  
Total Minor Assignments 15%

Minor Assignments are graded by instructors.

Major Assignments:  
1. Sketch Book 10%  
2. Anatomy A 15%  
3. Anatomy B 15%  
4. Concept Poster 35%  
Total Major Assignments 75%

Participation 10%  
Total Evaluation 100%

Major assignments 3 and 4 are graded 85% by instructors, 10% peer evaluation, 5% self evaluation. Criteria assessed may be: rough work (pre-meditation), color choice, composition (design choices/rationale), concept clarity, rendering quality, finished product, professionalism, presentation.

For the sketchbook, bonus assignments will be distributed throughout the course for students to experiment or try different things out. If students complete the bonus assignments, they can earn up to 5% of their Participation mark. Participation marks are also earned by being present in class and lab, asking questions, participating in critique and discussions.

Attendance at our lectures and labs is taken seriously by your instructors. Attendance will be taken at lecture and lab. Failure to show up in time or at all will result in reduction of your final grade as seen below:  
Missed one class = OK  
Missed three classes = grade drops by ½ letter  
Missed 4 classes = full letter drop  
3 times late = full absence
Lecture and Lab Schedule

Assignment given
Assignment due

Jan 4. Lec 0.  
**Introductory Lecture, No Lab (1R14 in Anatomy)**
Introduction to course lectures and lab assignments, course weighting, expectations, plagiarism & academic misconduct, course readings, and software being covered. Look at computer requirements if students were to use their own machines and where/what to buy in terms of art supplies.

*Major 1, Sketchbook assigned, due Thurs Apr 5.*

Jan 11. Lec 1.  
**Introduction and A Whirlwind History of Medical/Scientific Illustration**
A brief history of important images that are not art, how they developed, what they showed, and how we build on them today.

Jan 11. Lab 1.  
**Making Marks, Shape and Shadow: the Anatomy of Form (1R14)**
Lab will examine the act of drawing, and shape; how light and shadow reveal form; and mechanisms for achieving perspective depictions. Will need pencils, erasers and sketchbooks or paper.

*Minor 1, Shape & Shadow drawing assigned, due Thurs Jan 25.*

Jan 18. Lec 2.  
**Museum Visit....a bit of lab first before the lecture**
Beginning in McMaster Museum of Fine Art, students will be introduced to the skills of visual critique and detailed observation.

Jan 18. Lab 2.  
**Colour and Object Studies**
Lecture will look at how we see and perceive color, how we produce color and how we can manipulate it for optimal communication and design. Students will do some in- class using coloured pencils. Students will look at different tissue properties in the anatomy lab, how to observe and make notes for scientific drawings. In addition, we'll look at colour, how it can be manipulated for effect.

*Major 2, Anatomy A assigned, due Mon Feb 9.*

Jan 25. Lec 3.  
**Elements of Design**
What is good design? Heck, what *is* design? Why does it work, and why should we care?

*Minor 1, Shape & Shadow drawing is due.*
Jan 25. Lab 3. **Digital Painting I**  
Class will then move over to Lyons New Media lab for an introduction to Photoshop. Tablets needed.

Feb 1. Lec 4. **Moveable Type**  
Lecture will look at the anatomy of type and how to make documents that people actually want to read.

Feb 1. Lab 4. **Digital Painting II**  
Continuing instruction in Adobe Photoshop, focusing in transparency and other effects.

Feb 8. Lec 5. **Moveable Type II**  
Exploring more of what typography has to offer, working with hierarchy, redesigning resumes to be more effective.  
*Major 2, Anatomy A is due.*  
*Major 3 Anatomy B assigned, due Mar 8.*  
*Minor Resume redesign assigned, due Feb 15.*

Feb 8. Lab 5. **Adobe Illustrator I**  
Students will be introduced to Adobe Illustrator

Feb 15. Lec 6. **Telling Stories in Pictures**  
Lecture will discuss graphic narratives, instructional sequences and storyboards. Students will do in-class exercises...in groups.  
*Minor 2, Science Zine assigned, due Thurs Mar 8.*

Feb 15. Lab 6. **Adobe Illustrator II**  
Further instruction in Adobe Illustrator patterns and brushes.  
*40 Sketches due. Minor Resume redesign due.*

Feb 19 - 25. **Reading Week Break**
Mar 1. Lec 7. **Visual Literacy**
How well do we understand our visual world, how do we interpret symbols, images colours and gain meaning and understanding. What are the best practices?

*Major 4, Concept Poster assigned, due Apr 5.*

Mar 1. Lab 7. **Layout in Illustrator, working between PS and AI**
Building on design theory and experience in both Photoshop and Illustrator, students will work further with Illustrator. Lab will also serve as a work lab for assignments.

Mar 8. Lec 8. **Guest Lecture**
Special guest lecturer to talk about real world applications for storyboarding, and filming using medical/scientific narrative. Finding and figuring out narrative in medicine/science topics.

*Minor 2, Science Zine is due.*

Mar 8. Lab 8. **Mini Critique**
With a review of peer critique etiquette, students will present their work to date in the course.

*Major 3, Anatomy B is due.*

Mar 15. Lec 9 **Come See Us About Your Concept Poster!**
Book and appointment with us, bring your rough draft and ideas. We’ll help you get better focus and design for your poster!

Mar 15. Lab 9 **Work Lab, Rough Work for Concept Poster**
Students can work on Major 4 assignment. Each student will present their rough work and initial ideas to the instructors for the Major 4 assignment.

Mar 22. Lec 10. **Truthiness and Visualization**
Lecture will discuss oh how do you show what you can't see and/or what has never been shown before!

Mar 22. Lab 10. **Work Lab, Rough Work for Concept Poster**

Mar 29. Lec 11. **Mystery Lecture: What do you want us to talk about?**

Mar 29. Lab 11. **Work Lab**
Last work lab prior to final critique.

Apr 5. Lec 12. **Final Critique**
*Major 1, Sketchbook is due: 90 Sketches*
*Major 4, Concept Poster is due.*
*Resubmissions of assignments are due.*
ACADEMIC DISHONESTY

Academic Dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads “Grade of F assigned for academic dishonesty”) and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various kinds of academic dishonesty please refer to the Academic Integrity Policy, specifically Appendix 3, located at http://www.mcmaster.ca/senate/academic/ac_integrity.htm

The following illustrates only three forms of academic dishonesty:

1) Plagiarism, e.g. the submission of work that is not one’s own or for which previous credit has been obtained.
2) Improper collaboration in group work.
3) Copying or using unauthorized aids in test and examinations.

Students may be required to submit their work electronically and in hard copy so that it can be checked for academic dishonesty.

RESUBMISSIONS

It is expected that as you practice illustration over the course of the semester, your skills will improve. If you choose to resubmit an assignment, resubmissions are due on April 6. We will not accept or mark any resubmissions before April 6. The sketchbook and concept poster assignments cannot be resubmitted.

Resubmitted assignments will be marked only by the instructors, with the new mark replacing the old mark regardless of which is higher.