Spring 2021
Lectures: MW 2-3.30p (all recorded, asynchronous)

Prerequisites: PSYC 1, BIBB 109, VLST 101, COGS 001, PSYC 149/BIBB 249

Synopsis:
An introduction to the scientific study of vision, with an emphasis on the biological substrate and its relation to behavior. Topics will typically include physiological optics, transduction of light, visual thresholds, color vision, anatomy and physiology of the visual pathways, and the cognitive neuroscience of vision.

Instructor:
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Class structure (important due to university enforced teaching policies):
The course has three main components: weekly lectures, weekly group meetings/office hours, and assignments.

• Lectures (asynchronous): 3-4 recorded lectures will be posted every week. Posted on CANVAS.
• Weekly group meetings/office hours (synchronous, within the official lecture times MW 2-3.30p). Students will have the opportunity to meet (virtually) with the Professor and the TA every week. We will schedule these meetings depending on class size and interest in the first week of the semester.
• Three homework assignments will be given in preparation for the three planned midterm exams. Assignments and exams will be submitted and taken online.

We will be using ZOOM for all synchronous meetings (office hours). An official link will be sent to all registered students before our first class meeting on January 20, 2p (EDT). If for any reason a student is not registered by then but would like to participate in the first meeting anyway, the student should contact the instructor to let him know. Note, the first class meeting will be synchronous: the Professor will welcome the students and discuss the scope of the class and its mechanics.

Course Website (CANVAS):
The course has a dedicated CANVAS site. Lecture slides, homework assignments, and reading assignments/material will be posted there. Also, check the site frequently for
posted announcements and Q & As on the discussion board. In general, this is the place to go first if you have any question or are in need of any information regarding the course.

**Requirements:**
Homework1-3 posted on canvas
Midterm Exam 1 Feb 24
Midterm Exam 2 Mar 24
Midterm Exam 3 Apr 28

**Policy on homework assignments:**
Homework assignments are essential for a proper understanding of the material. There will be three homework assignments, meant in part as preparation for each midterm exam. Assignments and due dates will be posted on CANVAS. You must turn in your solutions latest on the due date at the end of the lecture (via CANVAS). The assignments will be graded and the solution will be posted on CANVAS the weekend after the due date. Homework grade contribute to your final grade (see below). Late turn-ins will be penalized.

**Policy on exams:**
Each of the three midterms will be designed to be completed in 75 minutes. However, you will have as much as 3 hours to complete the exams once you started them (online).

**Computation of the final grade:**
Your final grade will be computed as a weighted average of the average-score of the best two (out of the three) midterms (3/4), homework assignments (1/4).

There will be no makeup midterm exams as only the two best midterm scores count. In the unlikely case that a student has two or more qualified reasons of absence, only one, respectively none of the midterm scores count toward the final grade, and the grade weighing (above) is changed accordingly. Qualified reasons of absences are as officially defined by UPenn.

**Tentative Topic List:**
Design of the human eye.
Light, image formation, optics.
Clinical issues in visual neuroscience.
Visual adaptation.
Spatial resolution and the contrast sensitivity function.
Overview of retinal anatomy, phototransduction, absolute threshold.
Color vision and trichromacy.
Eye movements, depth perception and binocularity.
Motion perception.
Object recognition and face processing.
Visual cognition, visual attention, and visual memory.
Computational processes underlying visual perception and cognition.
Artificial vision, and more …