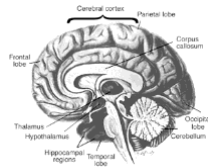


Speaking of the Brain

Fall 2024

Nancy Murray
(Biology)
murrayn@evergreen.edu



Rachel Hastings
(Linguistics and Math)
hastingr@evergreen.edu

Weekly Schedule				
Monday	Tuesday	Wednesday	Thursday	Friday
9am – 1pm Lecture/Workshop	9am – 12 pm Lecture/Workshop	9am – 12:30 pm Lab or Workshop	9am – 12pm Lecture/Workshop	NO CLASS
Greener Foundations*	1 pm – 3 pm Lecture/Workshop	NO CLASS	1 pm – 3 pm Lecture/Workshop End of week wrap-up	NO CLASS
* Greener Foundations is for first-time, first-year Evergreen students who are new to college. Students will take either Greener Foundations or Seminar, but not both.				

Speaking the Brain is a one quarter, lower division program that combines the disciplines of neurobiology and mathematics. Neuroscience continues to be one of the fastest growing areas of biology and is at the cutting edge of technical and conceptual advances in the life sciences. If you want to know how animals (including humans) touch, hear, see, smell, and remember things, then you need to study ions, molecules, cells, neural networks, brain structure and behavior. We will first learn about the function of the brain's cellular computers: neurons. We will learn how neurons differ from other cells, how they generate electrical signals, and how they communicate with one another via synapses. We will then investigate how neurons cooperate in circuits by studying five sensory systems: vision, touch, hearing, taste and smell. Cellular and molecular mechanisms will be emphasized alongside the physics and mathematics of neurobiology. In the mathematics workshops we will study scientific notation, unit conversions, and linear, quadratic, exponential, and logarithmic functions. These functions will be approached algebraically, numerically, graphically, and verbally with emphasis linking these multiple representations. Collaborative learning will be emphasized. Strong emphasis will be placed on developing mathematical skills and concepts to prepare students for future work in math and science; and to enhance students' mathematical literacy.

Our learning goals will include development of analytical and critical thinking, quantitative and symbolic reasoning, reading, and writing skills. Weekly activities will include lectures, presentations, labs, workshops, and seminars. Students will be expected to contribute actively to the learning community and will be evaluated on regular homework assignments, lab and workshop reports, seminar papers, and engagement with the program. Students who successfully complete the math portion of the program will receive six credits of Algebraic Thinking for Science and be prepared for precalculus I.

Anticipated Credit Equivalencies

- 6 - Introduction to Neurobiology with Lab
- 4 - Introduction to Linguistics
- 2 - Quantitative Reasoning for Biology
- 2 - Seminar on Cognitive Studies

Prerequisites: The most important prerequisites are college level study skills and a willingness to learn as part of a collaborative learning community.

Textbooks: TBD