The lives of scientists: the science of biology and the art of memoir
Tuesdays 6-8:30
Instructor: Clare Parker Fischer
Email: clare.parker@tufts.edu
Office: Barnum 216 D (216 is a teaching lab – there may be classes going on when you want to meet with me. Just walk in anyway. My office is the room within a room along the window at the back.)
Office hours: Wednesday 11-12 or by appointment

Course Description:
Biology is the science of life on planet earth. But although science is the pursuit of objective truths, all great discoveries are made by people who ultimately perceive the world through their own subjective lenses. In this course, we will investigate the human endeavor that is biology. By closely reading biologists’ memoirs of their experiences in and out of the lab, we will address such questions as: What is it about living things that drives people to devote their lives to their study? How are the questions scientists ask inspired by their experiences or bounded by their prejudices? Who is included and excluded from the scientific community? What are the struggles, failures, and triumphs behind the facts that wind up in textbooks? In this course, we will use personal narrative to explore both biological truths and the human minds that discovered them.

Student Expectations:
You are not expected to have a strong biology background coming into this course. However, you are expected to learn the biology as we go. If you do not understand a topic, ask! Your peers and instructor will help untangle any difficult concepts. This is a discussion class – be prepared to actively engage in every class. In order to get the most out of the course, we will be pursuing topics that you the students are most compelled by. You will therefore be expected to contribute to a pool of discussion questions/topics every week. You are also expected to keep up with the reading schedule in the syllabus.

Class Policies and Accessibility
Papers are due at the start of class. Late assignments will be marked down half a letter grade for each day late. If you have a conflict with a class or due date for any reason, please let me know as soon as you can.

Tufts University values the diversity of our students, staff, and faculty, recognizing the important contribution each student makes to our unique community. Students with disabilities are assured that the Student Accessibility Services office will work with each student individually to ensure access to all aspects to student life. Tufts is committed to providing equal access and support to all students through the provision of reasonable accommodations so that each student may access their curricula and achieve their personal and academic potential. If you have a disability that requires reasonable accommodations, please contact the Student Accessibility Services office at 617-627-4539, or through their email at Accessibility@tufts.edu, to make an appointment with the director to determine appropriate accommodations. Please be aware that accommodations cannot be enacted retroactively, making timeliness a critical aspect for their provision.
**Book List**

“Recollections of My Life” – Santiago Ramon y Cajal
“The Double Helix” – James Watson
“A Primate's Memoir” – Robert Sapolsky
“Thinking in Pictures” – Temple Grandin
“The Lives of a Cell” – Lewis Thomas

**Grading:**

Final grades are based on the following breakdown:

- Resident expert presentation – 25%
- Primary sources vs personal narrative paper – 25%
- Big questions paper – 15%
- Daily discussion topics – 10%
- Active participation in class – 25%

**NOTE:** The resident expert and primary sources vs personal narrative paper *must* be on different books.

**Daily discussion topics** –

Each week, students will provide discussion questions or topics. Topics should be specific to the reading, but students are encouraged to tie their topics into the class's big questions, books we've already read, or current events. Topics are due 2 hours before the start of each class. Each student must contribute to the question pool for 10 classes (i.e. they have 2 “free” classes, though participation in every discussion is required.)

**Resident expert presentations:**

Students will select one of the four memoirs (all but the Thomas essays) to be a resident expert. Experts will use textbooks, reputable online sources, magazine articles, etc. to gain a working knowledge of the field of biology covered by the memoir. At the beginning of the first discussion day on that book, experts will give a brief (15 minute), informal presentation on their field. For the remainder of the discussion of the book (2-4 days), any questions about the science are referred to the resident experts first, although the instructor will gladly handle more difficult or esoteric topics if the experts are unsure.

**Big questions in “The Double Helix”** –

Students will write a short paper (3 pages max) considering the big questions we posed on the first day of class and how these questions are addressed in James Watson's “The Double Helix.” The students should read between the lines to uncover an idea of Watson's philosophy of science, the context of the scientific community at the time, the events and ideas that shaped his life, etc.

**Primary sources vs. personal narrative paper** –

(Rolling deadline – due 2 weeks after we finish the book.) Students will select one scientific discovery that is described in one of the books and track down and read the primary literature where that story was published (this will usually be a peer-reviewed journal). Students will write a short paper (3 pages) comparing the different narratives of discovery.
Weekly schedule

January 26 – What is science?
This week, we will introduce the course and its objectives. We will discuss the ideal of science – the dispassionate and objective study of the natural world. How do we perceive science and scientists? How does memoir provide another way to understand the scientific enterprise? We will develop several big questions to ask of the memoirs as we read them.

February 2 – “The Double Helix” chapters 1-15

February 9 – “The Double Helix” chapters 16-29 and Epilogue

February 16 – “A Primate's Memoir” chapters 1-9
How to read a scientific paper
Big questions in “The Double Helix” paper due.

February 23 – “A Primate's Memoir” chapters -
Primary literature papers for “The Double Helix” are due.

March 1 – “A Primate's Memoir” chapters -

March 8 – “Thinking in Pictures” chapters 1-5

March 15 – “Thinking in Pictures” chapters 6-11
Primary literature papers for “A Primate's Memoir” are due

March 22 – Spring Break

March 29 – “Recollections” first third
Primary literature papers for “Thinking in Pictures” are due

April 5 – “Recollections” second third

April 12 – “Recollections” final third

April 19 – “The Lives of a Cell”

April 26 – Finish “The Lives of a Cell” and final discussion – What makes a scientist?
Last return to our big questions. What are some narratives of scientists' lives that are well known, and what further questions would we ask of them, if we could? What is a modern scientist's life like? Possible guest scientists from Tufts.

Primary literature papers for “Recollections of My Life” are due

No Final
Primary literature papers for “The Lives of a Cell” due May 10.
Further reading:

Scientists who write passionately about science:
Oliver Sacks
E.O. Wilson
Stephen J. Gould
Bernd Heinrich
Jane Goodall

A few other science memoirs:
Francis Crick “What Mad Pursuit”
Kate Jackson “Mean and Lowly Things”
Pamela Nagami “The Woman With a Worm in her Head and Other Stories”
David George Haskell “The Forest Unseen: A Year's Watch in Nature”

Some passionate non-scientists:
David Quammen “The Song of the Dodo” and other books
Helen MacDonald “H is for Hawk”
Annie Dillard “Pilgrim at Tinker Creek”

Stuff that isn't books:
The Working Life column in every issue of Science Magazine has a mini-memoir of a different scientist.