FIYS106 MEDICAL MYSTERIES OF THE MIND  
Fall Semester 2016-2017  
Shubhik K. DebBurman

BASIC INFORMATION

Class Hours:
Common Lecture: 9:30-10:50 am Tues & Thurs Johnson 200
Laboratory Section: 12:00 pm- 2:20 pm Tues Johnson 200/Johnson 215

Peer Teacher led weekly study sessions (starting September 4):
6-7 pm, Sundays, J267 (Alexandra Skozcek ‘18)

Instructor Office Hours:
9-11 am MW Johnson 201
12-4 pm F Johnson 201

Dropping in: If I am in the office and free of other duties, I’ll be happy to meet with you.
If I am busy in office or in lab, respect my non-availability and schedule an appointment.
Phone: 735-6040 (office), 615-2647 (home); avoid calling after 9 pm unless its an emergency.
email: debburman@lf.edu. Email is better than phone.

Peer Instruction (see yellow handout on Out-Of-Classroom Support for more details on peer instruction)
Peer Teachers LECTURE Alexandra Skozcek ‘18 (skozcekac@mx.lakeforest.edu)
LAB Luke Shylanksi ‘18 (shylanskil@mx.lakeforest.edu)

Peer Mentors GROUP WORK Logan Graham ’17 (grahamel@mx.lakeforest.edu)
Joseph Bortolotti ’17 (bortolottijp@mx.lakeforest.edu)
Lily Veldran ’17 (veldranle@mx.lakeforest.edu)
Trevor Buhr ’18 (buhrtj@mx.lakeforest.edu)
Krista Meuli ‘18 (meulika@mx.lakeforest.edu)
Olivia Dellomodarme ’19 (dellomodarme@mx.lakeforest.edu)
Chisomo Mwale ’19 (mwalec@mx.lakeforest.edu)
Abagayle king ’19 (kingal@mx.lakeforest.edu)

Writing Center Tutors


COURSE GOALS
1. To understand beginning neuroscience material from lectures, introductory texts, and brain anatomy.
2. To appreciate that research is integral to solving medical mysteries and to appreciate the research process.
3. To recognize and understand ethical dilemmas in biomedical research.
4. To improve your skills in written and oral communication, and use it to educate peers.
5. To learn to collaborate with peers and develop skills in collective responsibility.

DESCRIPTION
Welcome to Medical Mysteries! This first-year studies course is designed to excite beginning students about how the study of the human brain (“neuroscience”) connects with biomedical issues in human society. Neuroscience is one of the most well-funded and actively growing areas of medical research. Uncovering how our brains work is one of the final frontiers for scientific exploration. Unfortunately, neurological diseases are quickly becoming the major 21st century health concern of the United States. As you mentioned to me in phone conversations this summer, you likely chose this course because you are interested in how your brain helps you think, feel emotions, hear, see, smell, taste, move, talk, read, write, eat, sleep, dream, learn and form memories. Many of you have serious interest in the biomedical/health professions, natural sciences, or psychology; some simply have a strong natural curiosity for the biology of the mind and were drawn to the topic.

Through summer readings, you have already become acquainted with two tragic incurable illnesses by reading Deadly Feasts that focuses on mad cow disease and two scientific American articles on Alzheimer disease. This semester, you will further explore Alzheimer’s by meeting with scientists and
medical experts during your Chicago Experience on August 22 and by watching Oscar-winning movie Iris. You will explore the human condition by seeing and discussing several critically acclaimed movies during the semester, including Concussion, Temple Grandin, The Diving Bell & The Butterfly. Through lecture and classroom discussions, not only will you explore the basic biology of the human nervous system, but also investigate how its dysfunction causes devastating, mysterious medical illnesses. By watching several highly acclaimed documentaries, you will discover the complex symptoms and biology of Williams Syndrome, Autism, and Usher’s syndrome. Nationally noted neuroscience researchers will present seminars on the cutting edge of discovery through special visits to the college. I am confident you will realize that despite astonishing advances, major mysteries remain to be solved. Before fall break, you will read and discuss the book Thinking in Pictures to understand Autism from the perspective of a world famous scientist who has autism (Dr. Temple Grandin) and have the opportunity to meet with the scientist/author and hear her talk about it. After fall break, you will discuss case studies and read the book The Ethical Brain in order to debate ethical dilemmas that face society as scientists race towards solving these mysteries. You will also dissect real human brains to make connections between its complex structures and human behavior. Lastly, you will collaborate with peer mentors to organize a campus-wide “brain awareness” week (BAW) to educate the campus community on neuroscience issues and organize a K-6 outreach to a local school to teach elementary school children why the brain is important. This process will allow you to demonstrate your knowledge to others and apply what you have learned to society’s concerns.

READINGS
Introduction to Brain & Behavior (Fourth Edition), by Bryan Kolb and Ian Wishaw
Deadly Feasts, by Richard Rhodes
The Ethical Brain, by Michael S. Gazzaniga
Thinking in Pictures, by Temple Grandin
A Colorful Introduction to the Anatomy of the Human Brain (2nd edition), by John Pinel
A Pocket Style Manual-7e, by Diana Hacker.

EXPECTATIONS
Academic Honesty: I have zero tolerance for plagiarism and other forms of academic dishonesty. Please consult your student handbook regarding academic honesty and the honor system by which you should conduct yourself. You are fully responsible for being familiar with the Biology Department Academic Honesty Policy (I have provided you a copy and it is on Moodle), as well as the college's rules available here: http://www.lakeforest.edu/academics/writing/plag.asp. You may not share quizzes/tests, assignments and projects completed in this class with future FIYS106 and BIO130 students.

Attendance:
Philosophy: I will work hard to present you with relevant information in neurobiology in a lucid and interesting manner. In return, I expect that you will regularly attend my lectures, actively participate in the classroom and lab, as well as, put your best effort into each assignment. I will assume that you have read your assignments prior to class so that you can best engage in an informed classroom discussion and gain maximum benefit from my lectures. As a first year student, missing classes is a not a habit you want to cultivate in college. If you skip class, you will miss out both on valuable new information and contributing to classroom learning. For every class or lab that you miss without a valid (and verifiable) excuse, you will lose 5 points towards your grade.

Punctuality: My pet peeve is when students arrive late to class. Apart from being disruptive to my teaching efforts, it is also disrespectful to your peers in class who are punctual.

Absences: Unexcused absences from quizzes, exams, and labs will result in an appropriate loss in points. I will request the Dean’s office to confirm with your doctor on health-related absences. Religious observation and family/other personal emergencies may also require confirmation by the Dean’s office. I will make every effort to reschedule a missed quiz or a deadline, as a result of such excused absences.

Unexcused Late Assignments: I strongly discourage assignments being handed in late without a valid excuse. AVOID THIS INDULGENCE. Each late day is a 25% deduction in points. No assignment will be accepted three days after it is due.

No Texting or Phoning during class or lab. Shut off all electronic devices and keep them away.
Lastly, But Not In The Least: I am a professor in the Biology Department and the Neuroscience Program. I teach several science courses in cell & molecular biology, neurobiology, and human diseases. I conduct biomedical research to understand how neurological diseases, like Parkinson’s disease and Huntington disease, occur. More than 60 talented and motivated Lake Forest students (the majority now in MD and PhD programs) have worked in my lab and conducted individualized research projects and senior theses. As a teacher, I find few things more satisfying than working with academically motivated, hardworking collaborative students like you. I enjoy giving you diverse opportunities for personal and professional growth and I work closely with you to help you achieve academic success. I am always experimenting with new ways of teaching science to beginning and advanced undergraduates. I expect you to push me hard to do my best job! If you encounter problems understanding the material, please do not hesitate to talk with me. My job here is to help you learn. Your feedback and participation in class is very important. Remember also that I am here to learn from you. I have often found my students to be my most important teachers. I hope this course will be a rewarding experience for all.

GRADING

A. Your Skills at Learning Beginning Neuroscience Material 340
1. The Deadly Feasts Discussion 40  almost done!
2. Integrating Alzheimer’s: Summer Reading & The Chicago Experience 40  almost done!
3. The Ethical Brain class discussion 30
4. Thinking in Pictures class discussion 30
5. Quizzes: 50 points each (4) 200

B. Your Skills at Connecting Your Brain Structure To Function 80
1. Anatomy Pre-Quiz (4) 80

C. Your Skills at Engaging & Educating Peers 300
1. Medical Ethics Project (Learning to evaluate scientific practices with peers) 75  Peer mentored
2. Brain Awareness Project (Learning to teach neuroscience to the public) 150  Peer mentored
3. Elementary School Outreach (Learning to teach neuroscience to kids) 75  Peer mentored

D. Your Skills at Communicating By Writing 200
Response Papers: 50 points each
1. Movie Review: On Iris and The Diving Bell & The Butterfly
2. Response: On Thinking in Pictures
3. Narrative: On the PBS The Secret Life of the Brain Video Series
4. Internal Monologue: On the BBC The Mind Traveler: Oliver Saks

E. Three Simple Ways to Earn the Last 100 points 80
1. Demonstrate Resource Use, Creativity, Collaboration 20
2. Attend Fall seminars 30
3. Attending Brain Awareness Week events 30
TOTAL 1000

Attendance & Grade: For every class or lab that you miss without a valid (and verifiable) excuse, you will lose 5 points from this total of 1000.

SCALE
A  900 and above
B  800-899
C  700-799
D  600-699
F  <600

I rarely curve. If I do, you will only benefit and your grade will not be lower than the scale above. If you are on the borderline between two grades, I may reward improved performances over the semester and may look favorably on your overall use of resources, collaboration, and positive intellectual attitude during the semester (see last syllabus document entitled GREEN HANDOUT).
ASSIGNMENTS IN DETAIL

A. Your Skills at Learning Beginning Neuroscience Material (320 points)

1. Deadly Feasts; Summer Reading#1, 40 points

This summer you should have read this fascinating very-easy-to-read gripping account of one of the most enigmatic medical illnesses known, written by the Pulitzer Prize winning author, Richard Rhodes. After reading the book, you should have filled out in reasonable detail the Deadly Feasts discussion sheet and emailed me this sheet before you came to campus for orientation. Bring another copy of this completed sheet on the day of the class discussion (Week 2), take down additional notes, and hand in this second copy to your peer teacher at the end of the class discussion. You are expected to actively participate in class to receive full credit.

2. Integrating Alzheimer’s: Summer Reading #2 & Chicago Experience, 40 points

Over the summer, you read two short articles on Alzheimer's disease titled Piecing Alzheimer’s Together (written by Peter St. George Hyslop), and Shutting Down Alzheimer's (written by Michael Wolfe). Both articles are published in Scientific American (the national science magazine targeted for educated non-scientists). After reading both articles, you answered the first three (of five) questions in the Summer Reading II Questions Sheet and emailed the document to me by August 12 (Friday). You will answer Question 4 only after you have completed your First Chicago Day Experience on August 23 and you will answer Question 5 even later, after you view a movie on Alzheimer’s disease (Still Alice) during the second week of fall semester. Together, these five questions are worth another 2.5% of your grade. Again, note that your summer writing is an important indicator with which I will gauge your college-entry level writing ability.

3. Quizzes, 200 points

50 points each

The four quizzes (during lecture time; see Schedule) will be based on classroom discussions (supported by chapters assigned from your textbook). Quizzes will be mostly objective questions. I will give the first 20 minutes of class time for each quiz. You may come 5 minutes early to start a quiz. For each chapter, I will provide a list of concepts that will form the basis of the quiz questions.

- Quiz I: Chapter 1&2
- Quiz II: Chapter 3&4
- Quiz III: Chapter 5&8
- Quiz IV: Chapter 7&8

4. Thinking in Pictures, 30 points

On Thursday, October 6 at 7:30 pm, world famous veterinarian scientists and autism spokesperson, Temple Grandin, will deliver the annual Oppenheimer lecture based on her new book, How Animals Make us Human. FLYS106 will read one of her other books, Thinking in Pictures, which describes autism from her perspective as a scientists and as an autistic individual.

Our class will engage in a book discussion on Week 4, where we will explore whether you agree fully, partially, or disagree with series of eleven statements (one for each chapter) that we will provide. You will be required to come prepared with written comments to discuss your position on these statements, using evidence from the book and external sources. Your grade will be based on your written notes and effective classroom participation. Your peer teachers will lead this discussion.

5. Ethical Brain, 30 points

During the final three weeks of the semester, you will read and discuss the controversial and acclaimed book The Ethical Brain, by Michael Gazzaniga. He is widely considered to be the father of cognitive neuroscience and investigates many controversial and complex issues in The Ethical Brain with an expert eye. He explores the premise that understanding how our brain works may overturn our beliefs about moral and ethical behavior. He ponders whether we should have complete freedom to extend our lives and enhance our brains through the use of genetics, pharmaceuticals, and training. How will increasingly
powerful brain imaging technologies affect the ideas of privacy and self-incrimination? Such thought-provoking questions are rapidly emerging as new discoveries in neuroscience have raised difficult legal and ethical dilemmas. Gazzaniga advocates for neuroethics (a brain-based philosophy of life) where human beings deal “with social issues of disease, normality, mortality, lifestyle, and the philosophy of living is informed by our understanding of underlying brain-based mechanisms.”

Classroom discussion on Week 15 will explore whether you agree fully, partially, or disagree with this argument and will require that you come prepared with written comments to discuss your position on central statements linked to each chapter in the book. Your grade will be based on your written notes and effective classroom participation. Your peer teachers will lead this discussion.

B. Your Skills at Connecting Your Brain Structure To Function (80 points)
Pre-lab quizzes 80 points

Most neuroscience students have to wait until medical or graduate school before they can handle human brains. You get to study them first-hand your first year in college! The brain is simply one of the most fascinating organs of your body. You will get to handle, dissect and learn the basic anatomy of human brains in this class and compare it to sheep and calf brains. After exposure to various aspects of brain function in class, I expect you to learn anatomy by correlating it with brain function. You will be given six weeks (weeks 7-11) to gain this familiarity. During this time, we will spend one or two hours of the Thursday lab time to focus on certain aspects of brain structure and function. Each anatomy session will be linked to specific chapters from the brain anatomy book that you will be pre-assigned to complete before class starts. Each lab session will begin with a pre-lab quiz.

C. Your Skills at Engaging & Educating Peers (300 points)

a. The same neuroanatomy study group should conduct both the following projects. Do not form new groups. Everyone must participate equally within a group.
b. Both projects below require the FIYS106 students to be fully engaged in peer mentorship past FIYS106 students assigned to assist the FIYS groups as their official peer mentor. The mentors will in timely fashion advise, facilitate, and critique the work you do for each project. Your success will reflect their success.

1. Medical Ethics Project (Learning To Evaluate Scientific Practices), 75 points

Each group ranks four topics most interesting to them. You will be assigned two topics, and I will strive to give you topics that you have ranked.

Neuroscientists are constantly faced with their own ethical dilemmas. Part of being a good scientist is being aware of such issues and knowing how to work with them. You will work with your assigned FIYS106 peer mentor to pick an ethical case study from the list below. Your peer mentors will advise your group to prepare a one-hour class presentation during assigned lab hours that discusses the many issues that underlie your assigned case, the choices a scientist faces, and steps to overcome the ethical dilemma. Part of the group’s presentation will also be to research real ethical problems that have been highlighted in science journals and the popular media in the last five years that resemble the problem you are discussing. The entire FIYS class should be involved in a broader discussion of the same problem during or after the group’s presentation. The peer mentor should not play an active role during the presentation. Instead, he/she should mentor behind the scenes and prepare you for discussion.

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<th>Ethics Topics</th>
<th>Ethics Dates</th>
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<td>Promotional Pressures</td>
<td>Week 5 (FIYS106 Lecture/Lab Times)</td>
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<td>To be a Consultant … or Not</td>
<td>Week 6 (FIYS106 Lecture/Lab Times)</td>
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Consult the handout on Ethics Case Studies to get started. I will provide you a grading sheet two weeks before the project deadline.

I will reserve 10 points for your group to provide me a written summary of your discussion and providing me a copy of all consulted materials. Your peer mentors will provide me summaries of your method of preparation and collaboration and that will be worth another 15 points.
2. Brain Awareness Project (Learning To Teach Neuroscience To the Public), 150 points

**Week of November 7-12, 2016**

- Cafeteria and anatomy outreach: 100
- Preparation process: 50 points

This is a highly creative and collaborative project designed to provide you with an exciting opportunity to educate the LFC community about a neuroscience topic and to work closely with FIYS106 peers and senior peers. You will work with your assigned peer mentors to pick one topic from among the following areas of complex brain functions: **The Thinking Brain, The Sleepless Brain, The Emotional Brain, The Lingual Brain, The Learning Brain, or The Sexual Brain**. Your peer mentor will help you to design, research and conduct a Brain Awareness Campaign educating the community on the biology underlying this topic on our campus on the week of November 7-12 (2016). The FIYS106 peer mentor’s goal is to motivate, organize, educate, counsel, help plan, and serve as both role model and academic and campus resource. The actual format of how your group decides to conduct outreach is completely open-ended. I encourage you to be highly creative and have a really enjoyable time with this project. Make it personal to you—in vest in it. Remember, *I love being surprised!*

**The bottom line for the group’s outreach plan:**
- Educate the non-scientist about the topic in an interesting and effective way
- Reach a significant proportion of the campus community (middle campus, peak time)
- Combine visual with oral and written forms of communication with some hands-on exercise
- Include a physical display of some kind that can later be showcased in Johnson Science Building
- Reflect the liberal arts (try and combine science with fine arts, theater, humanities, or social sciences)
- Use multiple resources (books, internet, research) and must connect with brain anatomy

**Your outreach must address:**

- Why is this an important human behavior to study?
- What is the basic way our brain performs this activity?
- What are the current medical mysteries for this brain activity?

I will provide a grading sheet two weeks before the project deadline.

To get full process points, you must practice your presentation as a group in front of your peer mentors a week before the final presentation and revise the presentation based on this feedback. Your peer mentors will provide me summaries of your method of preparation and collaboration.

3. Elementary School Outreach, 75 points

**November 29, 2016**

*FIYS106 has no traditional final exam. Instead your K-6 capstone activity will serve as a non-traditional final evaluation.*

Your class will be one of the few in the college this year to engage in curricular outreach with a Lake Forest elementary school. This partnership with the local K-6 school system is a recent direction for our college’s efforts to better serve the broader community we are part of. What better way to teach what you have learned in this class than excite our youngest of minds why they should care about their brain and learn about the awesome powers it holds over our bodies. What would you most want to know if you were a 4th or 5th grader? What are the most basic brain principles that are worth teaching? How can you make children interested in science so that they may want to learn more of it in middle and high school?

This final project replaces a traditional final exam and large paper that marks the end of most courses. Your outreach is on Week 15. On **October 9 (Sunday)**, a workshop will be lead by Education Professor Ann Reichel to make you think about the brains of elementary aged children and how they learn. Each group will then be assigned a central brain concept that they will teach elementary school children to learn and remember. The group must come up with class exercises that help explain the concept in a hands-on way that children can relate to. The group designs an activity in a way that makes sure they know that children actually do understand the material. You are encouraged to build models, do skits, and most importantly,
make it a fun and exciting after-school special for these children. Your FIYS106 Peer Mentor will help you design, practice, and execute your teaching activities.

We will hold several brainstorming, planning and practice sessions to ensure that you are confidently prepared to teach young minds in the most engaging ways possible.

Plan and preparation: 50%; Actual presentation: 50%

**Outreach day: November 29 (Tuesday lab), Johnson Science Center**

**D. Your Skills at Communicating By Writing 200 points**

All FIYS courses at Lake Forest College are writing-intensive.

**Four Papers:** 50 points each

1. **Movie Review: On *Iris* & The Diving Bell & The Butterfly**
   Textbooks are not the only sources of scientific “facts”, “theories”, and “hypotheses”. Science is conveyed via many other formats: popular magazines, essays, film, nonfiction books, biographies and autobiographies. In fact, the undeniable excitement underlying scientific discoveries is seldom appreciated in textbooks. Hollywood and the international cinema industry enjoy a long history of portraying mental and neurological conditions through film. In this course, you will begin by seeing two Oscar-nominated movies, *Iris* during lab time on Week 2 and *Awakenings* on Week 3. Don the role of a movie critic for the college student newspaper Stentor and write a 1000-1200 word review providing a joint assessment of both movies for its student readers. Be sure to compare and contrast the effectiveness of both movies to educate the audience on human diseases and the science behind them. Provide either a positive or negative recommendation to see this movie and justify your recommendation. I will provide some good examples of book/movie reviews, so you can become familiar with content and style. I encourage you to support your opinions in this review using: your summer readings, Chicago trip, and your own personal experiences with neurologies like Stroke and Alzheimer's, if any. **Note:** Do not read published reviews of the movies already available in print or the web. Plagiarism will not be tolerated and I have copies of just about all published reviews of these movies.

   Tips on how to write a good review:
   [http://www.ucls.uchicago.edu/students/projects/1996-97/MovieMetropolis/howto.html](http://www.ucls.uchicago.edu/students/projects/1996-97/MovieMetropolis/howto.html)

   -I will share a grading sheet with you two weeks before this assignment is due from you.
   -The best-written movie review from this class will be submitted to EUKARYON for publication consideration, the undergraduate journal of life science scholarship at Lake Forest College.
   -You are required to get your complete draft read by a recommended tutor at the Writing Center at least one week before it is due. I will reserve 10 points for this early consultation. I will not give any points for a brainstorming session with the tutors for a pre-draft, although I strongly encourage that as well.

   -You are required to get your complete draft read by a recommended tutor at the Writing Center at least one week before it is due. I will reserve 10 points for this early consultation. I will not give any points for a brainstorming session with the tutors for a pre-draft, although I strongly encourage that as well.

2. **Argument paper: On *Thinking in Pictures***
   Grandin discusses how an individual with autism processes empathy and the world around them through their senses. She also discusses how this can often times cause individuals with autism to have difficulty adjusting in society and in schools. Grandin also argues that schools and professional cultures built on school credentials are not accepting enough of diverse thinkers. Develop a 1000-1200 word evidence-based argument on whether you agree with Grandin’s claims? Have you seen this in operation or in your own life? Based on what you have learned from this book and other sources how do you believe schools, professional settings, and social settings can be changed to be more accepting of those with autism? You must use in-text citations and reference both Grandin's book as well as external references for each discussion point you focus on. Between 7-10 external sources must be cited (APA style).

   I will share a grading sheet with you two weeks before this assignment is due from you.

   The best-written response paper from this class will be submitted to EUKARYON for publication consideration, the undergraduate journal of life science scholarship at Lake Forest College.
3. NARRATIVE: On PBS *The Secret Life of the Brain* Video Series
The mystery begins in the womb four weeks after gestation. 500,000 brain cells are forming every minute. Eventually, there will be billions of cells and trillions of links, with every cell finding its place and every link carefully organized. How does this happen? Renowned filmmaker David Grubin draws on neuroscience’s leading researchers and latest discoveries for answers. This series explores the startling new map of the brain that has merged from the past decade of neuroscience and shares a revelatory view of this complicated organ. You will not only learn startling new truths about the brain, but also voyage inside it.

**Video 1:** *The Baby’s Brain: Wider Than the Sky*  
**Video 2:** *The Child’s Brain: Syllable from Sound*  
**Video 3:** *The Teenage Brain: A World of Their Own*  
**Video 4:** *The Adult Brain: To Think By Feeling*  
**Video 5:** *The Aging Brain: Though Many Lives*

Your first response paper explores your ability to narrate a story. This is the plot: Imagine you are a neuron. Pick the part of the brain where you would most like to reside! Tell the story of your life (from your birth as a neuron till your death) as part of a human being who lives a long productive life but dies from a neurological disease that affects the part where you live and function. Choose either Parkinson’s disease or Alzheimer’s disease as the illness and a character from one of the movies as the person in whose brain you live. Use specific neuroscience insights from the videos, and the movies, classroom discussions, and your textbook. This creative writing adventure should be in first person and should explain biology in a lay simple style. I expect a 1000-1200 word story. At the end of the narrative, list all of the neuroscience topics you touched on while detailing the life story of the neuron.

I will share a grading sheet with you two weeks before this assignment is due from you.

The best-written narrative from this class will be submitted to EUKARYON for publication consideration, the undergraduate journal of life science scholarship at Lake Forest College. You are ENcouraged to get your complete draft read by a recommended tutor at the Writing Center at least one week before it is due. I will reserve 10 points for this early consultation. I will not give any points for a brainstorming session with the tutors for a pre-draft, although I encourage that as well.

4. OPTION I: Response Paper: *The Ethical Brain*
Michael Gazzaniga, widely considered to be the father of cognitive neuroscience, investigates with an expert eye many controversial and complex issues in *The Ethical Brain*. He explores the premise that understanding how our brain works may overturn our beliefs about moral and ethical behavior. He ponders whether we should have complete freedom to extend our lives and enhance our brains through the use of genetics, pharmaceuticals, and training. How will increasingly powerful brain imaging technologies affect the ideas of privacy and self-incrimination? Such thought-provoking questions are rapidly emerging as new discoveries in neuroscience have raised difficult legal and ethical dilemmas. Gazzaniga advocates for neuroethics (a brain-based philosophy of life) where human beings deal “with social issues of disease, normality, mortality, lifestyle, and the philosophy of living is informed by our understanding of underlying brain-based mechanisms”. Do you agree fully, partially, or disagree with this argument? Your task is to write a 1000-1200 word essay that articulates your position on neuroethics. Which issues would you ascribe or not as within the realm or neuroethics? Support your position with well thought arguments, with resources from the book, and consult and cite between 3-5 other published sources in your paper (citations APA style).

-I will share a grading sheet with you two weeks before this assignment is due from you.  
-The best-written movie review from this class will be submitted to EUKARYON for publication consideration, the undergraduate journal of life science scholarship at Lake Forest College.

4. OPTION II: Internal Monologue: On the BBC *The Mind Traveler: Oliver Saks* Video Series
Oliver Saks is one of the foremost neurologists in the world and the author of several critically acclaimed books, including *Awakenings*, and several documentaries. He was the inspiration for the neurologist character depicted in *Awakenings*. In the class, you will see three video documentaries from the BBC Mind Traveler series, that will introduce you to the patients (and their families) who suffer from three unusual
neurologies: *Williams Syndrome, Usher Syndrome,* and *Autism.* What is remarkable about each of these illnesses is that those afflicted with it have several clinical deficits as well as extraordinary gifts. What is remarkable about the videos is that Dr. Saks’s empathetic encounters with these individuals is intense and personal and that helps draw us into the everyday lives of the patients and gives us insight into their illness as well as existence.

The goal of your fourth response paper is to write a 1000-1200 word internal monologue. Here is the wikipedia definition for internal monologue: “also known as inner voice, internal speech, or stream of consciousness is ‘thinking in words’. It also refers to the semi-constant internal monologue one has with oneself at a conscious or semi-conscious level. Much of what people consciously report ‘thinking about’ may be thought of as an internal monologue, a conversation with oneself. Some of this can be considered as speech rehearsal, and it seems to be that the internal monologue is generally in the native language of the person concerned.”

To learn more about how to write an internal monologue, go here:
http://au.answers.yahoo.com/question/index?qid=20080511123736AAf4IHN

During the third week of the semester, you will see the Oscar-nominated movie: *The Diving Bell & The Butterfly.* This is a powerful memoir of a stroke victim, who is completely paralyzed and learns to communicate through the blinking of one eye. Much of the story is an internal monolog, as we learn about the victim’s life, work, his recovery and the writing of his memoir through the voice of his thoughts.

For your internal monologue, I would like you to set up a plot where a major character from one video has a chance encounter with a major character from another video. They meet and talk for a short amount of time. Take on the role of one of these characters. Your internal monolog should be about what you are thinking about the other person, while you have the verbal conversation with him/her. Obviously, the kind of conversation and thoughts you have is informed by how well you understand the two characters (from seeing the videos). Both of you have an illness with very different symptoms. How do you react to someone with a very different set of symptoms? How does being ill yourself, influence your thoughts? Both of you have extraordinary ways in which you live life, despite your illness. How does your illness-shaped philosophy provide perspective on the other person?

I will share a grading sheet with you two weeks before this assignment is due from you.

The best-written monolog from this class will be submitted to EUKARYON for publication consideration, the undergraduate journal of life science scholarship at Lake Forest College.

You are required to get your complete draft read by a recommended tutor at the Writing Center at least one week before it is due, I will reserve 10 points for this early consultation. I will not give any points for a brainstorming session with the tutors for a pre-draft, although I encourage that as well.

**E. Four Simple Ways to Earn the Last 100 points: GO FOR IT!**

1. **Demonstrate Resource Use, Collaboration, & Intellectual Enthusiasm,** 20 points
How you learn is just as important as what you learn. If you demonstrate positive learning habits, good collaborative ability, and use the placed resources well, I will be happy to award you up to 20 points.

**You have used resources effectively if you**
- Did not miss appointments with me and did not wait till the last minute to work on assignments
- Consulted regularly with your peer teacher when you needed advice and attended peer teacher sessions
- Incorporated Writing Tutor’s feedback on response papers in timely ways
- Took the mock practical exam in preparing for anatomy exam
- Practiced your ethics project and brain awareness projects in front of peer teachers/peer mentors

**You have collaborated well if you**
- Contributed equally to developing each group project and participated equally in presenting each talk
- Involved your peer mentor and accorded respect to a senior peer

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• Provided support for your group members if they needed it
• Did not complain about each other and tried to solve conflicts by talking with one another
• Maintained healthy collegiality and supported other groups by enthusiastic participation in their efforts

You have demonstrated positive intellectual attitude if you
• Actively and attentively participated in class and lab and pushed me to be even more effective
• Were prepared ahead in readings and were not absent or late for class, labs, or meetings
• Demonstrated curiosity and creativity in your assignments
• Showed personal initiative and leadership (plenty of scope to do so in this class)

2. 2016 Neuroscience Seminar Series, 30 points
I believe that it is important to expose undergraduates to the dedicated scientists who are working at the forefront of research. This semester I will invite several well-known medical experts and researchers to visit Lake Forest College and educate us about their efforts to solve diverse medical mysteries. If you attend these three talks fully and submit a one-page summary within 48 hours by email to your lab peer teacher, you will receive 10 points per talk.
1. September 13
Professor Harriet de Wit, Department of Psychiatry and Behavioral Neuroscience, University of Chicago
Title: Deconstructing Ecstasy: Science Behind the Love Drug
2. October 6
Professor Temple Grandin, Department of Animal Science, Colorado State University
Title: How Animals Make Us Human
3. November 7
Professor Viorica Marion, Ralph and Jean Sundin Endowed Chair in Communication Sciences and Disorders, Northwestern University
Title: Consequences of bilingualism for cognition, language and the brain
4. November 8
Professor John Maunsell, Albert Lasker Professor of Neuroscience, Director, Grossman Institute of Neuroscience, Quantitative Biology and Human Behavior, University of Chicago
Title: What is Attention? Insights from the Signals of Individual Brain Cells

3. 2016 Brain Awareness Week (BAW), 30 points
FIYS106 is integral to the success of Brain Awareness Week, and is one of its key organizers. You will be expected to participate in several key events (from a larger choice of options) to earn 30 points towards your grade. More details are forthcoming.
YELLOW HANDOUT

FIYS106: OUT-OF-CLASSROOM RESOURCES

1. Peer Teachers

<table>
<thead>
<tr>
<th>Role</th>
<th>Name</th>
<th>Email</th>
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<tbody>
<tr>
<td>LECTURE</td>
<td>Alexandra Skozcek ’18</td>
<td><a href="mailto:skozcekac@mx.lakeforest.edu">skozcekac@mx.lakeforest.edu</a></td>
</tr>
<tr>
<td>LAB</td>
<td>Luke Shylanski ’18</td>
<td><a href="mailto:shylanskil@mx.lakeforest.edu">shylanskil@mx.lakeforest.edu</a></td>
</tr>
</tbody>
</table>

Aly Skozcek is a neuroscience and chemistry double major and your lecture peer teacher and she will attend all lectures. She took BIOL130 (very similar to FIYS106) last year and did very well in it. She will hold weekly tutorials on Sunday evenings that I encourage you to attend so that you can review your lecture and classroom discussions and be best prepared for your quizzes.

Luke Shylanski is a neuroscience and economics double major and your lab peer teacher will attend all labs and will help with all lab-based activities. He took FIYS106 and did very well in all aspects of the course. He will also oversee all group projects and support all FIYS106 peer mentors to achieve this overall goal.

2. Peer Mentors

FIYS106 GROUP WORK

<table>
<thead>
<tr>
<th>Name</th>
<th>Email</th>
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</thead>
<tbody>
<tr>
<td>Logan Graham ’17</td>
<td><a href="mailto:grahamel@mx.lakeforest.edu">grahamel@mx.lakeforest.edu</a></td>
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<tr>
<td>&amp; Abagayle king ’19</td>
<td><a href="mailto:kingal@mx.lakeforest.edu">kingal@mx.lakeforest.edu</a></td>
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<tr>
<td>Lily Veldran ’17</td>
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<td>Trevor Buhr ’18</td>
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</tr>
<tr>
<td>&amp; Krista Meuli ’18</td>
<td><a href="mailto:meulika@mx.lakeforest.edu">meulika@mx.lakeforest.edu</a></td>
</tr>
</tbody>
</table>

Each mentor pair will guide an FIYS group of 5 students. They are guides for successful implementation of your projects and will aid your scientific understanding of the neuroscience subject matter. You are expected to involve them in all aspects of your three group projects (Medical Ethics, Brain Awareness Week, K-6 outreach). They are, in part, responsible for your grade in these projects, as they monitor how effectively you work as a group to make progress in your three projects.

3. Writing Center Tutor

Any writing tutor in the Writing Center can help you with your papers. For your first response paper, you are required to show your complete draft one of them at least a week before the paper is due and revise it to accommodate criticisms before you hand in your final draft for grading. For your next three response papers, I will recommend that some of you must show your drafts. The rest are encouraged to show your papers at the first draft stage.

3. Reference Librarian & Library Research Guide

Cory Stevens, head reference librarian in Donnelley library, is specialized in first-year studies. I encourage you to seek her advice on your search for relevant books, papers, and web sources for your projects.

Email: estevens@lfc.edu  Phone: 847-735-5072

Your course’s library guide page is: http://www.lakeforest.edu/library/guides/fiys106.php

This is a handy course guide will help you find resources via the library and the Internet for your research projects in this course. We will discuss this page and library resources during a Week 2 library session.