TIDES 1560-01
NOBEL LAUREATES IN THE NEUROSCIENCES
FALL 2015
W 12:00-1:15 pm

PROFESSOR:  Dr. Thomas Hebert; 2021A Stern; Phone: 862-8331; thebert1@tulane.edu
OFFICE HOURS:  Monday, Wednesday 10:00 -11:00 and by appointment


COURSE DESCRIPTION, OBJECTIVES AND OUTCOMES:  This course discusses the work and history of selected Nobel laureates in the neurosciences through readings, discussions, student presentations, and empirical demonstrations.  Students will have an opportunity to learn from actual human brain specimens and to observe rats as they are trained in a maze.  The objective is to chronologically review the work and research techniques of these individuals as neuroscience has developed as a field.  The outcome is to understand how the field of neuroscience emerged from historically traditional areas of research.

EVALUATION/GRADING:  A list of 7 Nobel Laureates will be selected during our third meeting.  This list will be posted on BlackBoard and are you required to submit a summary of the Laureate’s work for each week.  They are to be 2 pages double spaced and typed.  They are due at the start of class and you may not turn in more than one per class.  These assignments will accumulate to 70 points.  Class participation in general is worth 30 points.  Thus, we have a total of 100 points for this course.  Letter grades will be based on the number of total points that you accrue.  100% -90% of the total will be assigned a letter grade of A, 89%-80% of the total will be assigned a letter grade of B, and so on.

HONOR CODE:  The standards of conduct expressed in the Tulane University Honor Code, which can be found here: http://provost.tulane.edu/HonorCode.htm.  If you have concerns, it is better to ask questions before you begin as opposed to after the work is complete.

SPECIAL INSTRUCTIONAL NEEDS:  If you have any special needs or require accommodations by the Center for Educational Resources and Counseling (ERC), please bring this to my attention during the first week of the semester.
CLASSROOM ETIQUETTE AND COMMUNICATIONS: Attendance is expected and required. Students should arrive on time and conduct themselves in a demeanor appropriate to an academic environment. Students that are habitually late or disruptive will be counseled and it may affect your final letter grade. Feel free to ask relevant questions during lecture. Turn off cell phones and beepers prior to class and do not speak on phones during class. If you are expecting an important call, notify me prior to class and we can make arrangements. To protect confidentiality, I ordinarily do not report grades by email or telephone. However, if a student makes prior arrangements with me, an exception may be made. Unless approved by the ERC or me, audio or video recording of lectures is prohibited. Lecture notes or slides are not available for students. Use of laptops is allowed as space permits.

THE ACADEMIC EXPERIENCE: In regards to your time spent in college, my feelings are very similar to the quote below by the famous psychologist, William James. To a large extent, college is what you make of it. The more you put into it, the more you will receive from it. As someone who speaks from the experience of many years as a student, I urge you to give your best effort in this and all your courses. Run the race to win and you will not regret it, regardless of where you finish. Please feel free to see me if you are having difficulties with this or any other course.

Potential List of Nobel Laureates
(Specific Nobel Laureates from this list will be selected for weekly discussion)

1. The Nobel Prize in Physiology or Medicine 2014
   John O’Keefe, May-Britt Moser and Edvard I. Moser
   “for their discoveries of cells that constitute a positioning system in the brain”
2. The Nobel Prize in Physiology or Medicine 2013
   James E. Rothman, Randy W. Schekman and Thomas C. Südhof
   “for their discoveries of machinery regulating vesicle traffic, a major transport system in our cells”
3. The Nobel Prize in Physiology or Medicine 2004
   Richard Axel and Linda B. Buck
   “for their discoveries of odorant receptors and the organization of the olfactory system”
4. The Nobel Prize in Physiology or Medicine 2000
   Arvid Carlsson, Paul Greengard and Eric R. Kandel
   “for their discoveries concerning signal transduction in the nervous system”
5. The Nobel Prize in Physiology or Medicine 1991
   Erwin Neher and Bert Sakmann
   “for their discoveries concerning the function of single ion channels in cells”
6. The Nobel Prize in Physiology or Medicine 1981
   **Roger W. Sperry**
   “for his discoveries concerning the functional specialization of the cerebral hemispheres”
   **David H. Hubel and Torsten N. Wiesel**
   “for their discoveries concerning information processing in the visual system”

7. The Nobel Prize in Physiology or Medicine 1977
   **Roger Guillemin and Andrew V. Schally**
   “for their discoveries concerning the peptide hormone production of the brain”
   **Rosalyn Yalow**
   “for the development of radioimmunoassays of peptide hormones”

8. The Nobel Prize in Physiology or Medicine 1973
   **Karl von Frisch, Konrad Lorenz and Nikolaas Tinbergen**
   “for their discoveries concerning organization and elicitation of individual and social behaviour patterns”

9. The Nobel Prize in Physiology or Medicine 1971
   **Earl W. Sutherland, Jr.**
   “for his discoveries concerning the mechanisms of the action of hormones”

10. The Nobel Prize in Physiology or Medicine 1970
    **Sir Bernard Katz, Ulf von Euler and Julius Axelrod**
    “for their discoveries concerning the humoral transmitters in the nerve terminals and the mechanism for their storage, release and inactivation”

11. The Nobel Prize in Physiology or Medicine 1963
    **Sir John Carew Eccles, Alan Lloyd Hodgkin and Andrew Fielding Huxley**
    “for their discoveries concerning the ionic mechanisms involved in excitation and inhibition in the peripheral and central portions of the nerve cell membrane”

12. The Nobel Prize in Physiology or Medicine 1961
    **Georg von Békésy**
    “for his discoveries of the physical mechanism of stimulation within the cochlea”

13. The Nobel Prize in Physiology or Medicine 1950
    **Edward Calvin Kendall, Tadeus Reichstein and Philip Showalter Hench**
    “for their discoveries relating to the hormones of the adrenal cortex, their structure and biological effects”

14. The Nobel Prize in Physiology or Medicine 1949
    **Walter Rudolf Hess**
    “for his discovery of the functional organization of the interbrain as a coordinator of the activities of the internal organs”
    **Antonio Caetano de Abreu Freire Egas Moniz**
    “for his discovery of the therapeutic value of leucotomy in certain psychoses”

15. The Nobel Prize in Physiology or Medicine 1947
    **Carl Ferdinand Cori and Gerty Theresa Cori, née Radnitz**
    “for their discovery of the course of the catalytic conversion of glycogen”
Bernardo Alberto Houssay
“for his discovery of the part played by the hormone of the anterior pituitary lobe in the metabolism of sugar”
16. The Nobel Prize in Physiology or Medicine 1944
Joseph Erlanger and Herbert Spencer Gasser
“for their discoveries relating to the highly differentiated functions of single nerve fibres”
17. The Nobel Prize in Physiology or Medicine 1936
Sir Henry Hallett Dale and Otto Loewi
“for their discoveries relating to chemical transmission of nerve impulses”
18. The Nobel Prize in Physiology or Medicine 1932
Sir Charles Scott Sherrington and Edgar Douglas Adrian
“for their discoveries regarding the functions of neurons”
19. The Nobel Prize in Physiology or Medicine 1906
Camillo Golgi and Santiago Ramón y Cajal
“in recognition of their work on the structure of the nervous system”
20. The Nobel Prize in Physiology or Medicine 1904
Ivan Petrovich Pavlov
“in recognition of his work on the physiology of digestion, through which knowledge on vital aspects of the subject has been transformed and enlarged”

WEEKLY SCHEDULE (TENTATIVE)

Week 1: Orientation and list of Nobel Laureates given
Week 2: Discussion of Fall Book selection
Week 3: Finalize list of Nobel Laureates selected for next 7 meetings
Week 4: Discuss work of first laureate
Week 5: Discuss work of second laureate
Week 6: Discuss work of third laureate
Week 7: Discuss work of forth laureate
Week 8: Discuss work of fifth laureate
Week 9: Discuss work of sixth laureate
Week 10: Discuss work of seventh laureate
Week 11: Final meeting and discussion of future directions in Neuroscience

Additional Reading: