Course Syllabus

Course Information

Course Number/Section	NSC 4V90.003 Special Topics in Neuroscience (NSC 4372)
Course Title	Neuroimmunology
Term	Fall 2013
Days & Times	MW 11:30-12:45 CR 1.202

Professor Contact Information

Professor	Dr. Steve McWilliams
Office Phone	972-883-6785 (no voice mail)
Email Address	***course-related communication email must be sent through elearning*. I am the 'section instructor'**
Office Location	GR 4.304
Office Hours	MWF 1:00-2:00 or by appointment
Other Information	Course Web Site: UTD eLearning

Course Pre-requisites, Co-requisites, and/or Other Restrictions

NSC 3361 Behavioral Neuroscience; NSC 4352 Cellular Neuroscience and/or BIOL 3371 Biology of the Brain. BIOL 4345 Immunobiology is recommended, but not required

Course Description

This is an upper level course that explores the complex interactions of the nervous and endocrine systems as they relate to the immune system. This course will also examine how the systems function together to serve homeostasis, behavior, and disease.

Course Content

In this course we first define neuroimmunology in terms of functions and structures and explain the basics of immunology. This will be followed by a study of neuroendocrine and immune systems interactions, the roles that cytokines play in bidirectional communication and the neural pathways that mediate behavioral changes associated with the immune system. We will then look at neuroimmunology and its association with stress, neurodevelopment, depression, cancer, autoimmunity, psychology, and schizophrenia.

Student Learning Objectives/Outcomes

After completing the course, students should be able to:

1. Define and explain neuroimmunology as to relates to neuroscience, endocrinology, and Immunology, as well as the interactions between these systems
2. Define and explain the actions of cytokines and other chemical mediators associated with neuroimmunology
3. Describe neural pathways mediating behavioral changes associated with immunological challenges
4. Integrate neuroimmunology with behavioral and mental disorders

5. Explain stress, neurodevelopment, depression, cancer, autoimmunity, psychology, and schizophrenia in terms of neuroimmunology

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Required Textbooks and Materials
Introduction to Psychoneuroimmunology, Daruna, 2nd Ed.
The Neuroimmunological Basis of Behavior and Mental Disorders, Siegel and Zalcman

Suggested Course Materials
A basic *Immunology* textbook may be helpful

Grading Policy
Exams (100%): There will be four exams during the course. Each exam will be worth 25% of your final grade and will cover the material preceding the exam. The questions on the exams will be taken from the assigned textbook readings, class lectures, as well as any additional material that I may provide. Exams will consist of true/false s and multiple choice questions. You will need scantron form 229630 or 229634 and a pencil for each test.

Final Grades: A (90–100), B (80–89), C (70–79), D (60–69), F (≤ 59).

Course & Instructor Policies

Make-up exams
Missed exams will be given only if: (1) you were seriously ill and have verifiable documentation from a physician, or (2) you were detained at the time of the exam and have verifiable documentation, or (3) you made arrangements prior to the exam. In any of these cases, you must notify the professor in advance of the exam via eLearning. If you were detained, you must notify the professor as soon as possible. Otherwise, you will receive a grade of zero.

Attendance and Readings
Your performance in this course will probably be affected by your attendance. I will often emphasize particular parts of a chapter that I think are critical for your future studies. In addition, I will from time to time present additional material in lecture that is not covered in the textbook. Supplemental readings may be posted on eLearning. **There will be a lot of reading, simply because we are studying complex integrated systems!**

Elearning
To comply with FERPA regulations, **all email discussions to and from me MUST be through elearning**. This is to protect your privacy, and to keep me organized. Discussion boards and Chat are available for your use. I will not routinely monitor them unless I receive complaints about inappropriate posting. Grades will be posted as soon as they are available. Announcements may be made from time to time.

Assignments & Academic Calendar

Day	Date	Topic	Reading
Mon	Aug 26	Introduction to Neuroimmunology	
Wed	Aug 28	Immune System Basics	Daruna (Chpt. 3)
Mon	Sep 2	University Closed- No Classes	
Wed	Sep 4	Immune System Basics	Daruna (Chpt. 3)
Mon	Sep 9	Neuroimmune Modulation	Daruna (Chpt. 5)
Wed	Sep 11	Endocrine-Immune Modulation	Daruna (Chpt. 4)
Mon	Sep 16	Endocrine-Immune Modulation	
Wed	Sep 18	**Follow-up & Review**	
Mon	Sep 23	**Exam I**	
Wed	Sep 25	Neural Pathways Mediating Behavioral Changes Associated with Immunological Challenge	Siegel
Mon	Sep 30	Cytokines and the Blood-Brain Barrier / Molecular Basis of Cytokine Function	Siegel / Siegel
Wed	Oct 2	Cytokines and the Blood-Brain Barrier / Molecular Basis of Cytokine Function	
Mon	Oct 7	Neurochemical and Endocrine Responses to Immune Activation: the Role of Cytokines	Siegel
Wed	Oct 9	Neurochemical and Endocrine Responses to Immune Activation: the Role of Cytokines	
Mon	Oct 14	**Follow-up & Review**	
Wed	Oct 16	**Exam II**	
Mon	Oct 21	Psychosocial Stress: Neuroendocrine and Immune Effects	Daruna (Chpt. 7)
Wed	Oct 23	Infection. Allergy, and Psychosocial Stress	Daruna (Chpt. 8)
Mon	Oct 28	Alteration of Neurodevelopment and Behavior by Maternal Immune Activation	Siegel
Wed	Oct 30	Cytokine-Induced Sickness Behavior and Depression / Cytokines, Immunity and Sleep	Siegel / Siegel
Mon	Nov 4	Cytokine-Induced Sickness Behavior and Depression / Cytokines, Immunity and Sleep	
Wed	Nov 6	**Follow-up & Review**	
Mon	Nov 11	**Exam III**	
Wed	Nov 13	Cancer, Autoimmunity, and Psychosocial Stress	Daruna (Chpt. 9)
Mon	Nov 18	Immune Activity and Psychopathology	Daruna (Chpt. 10)
Wed	Nov 20	Cytokines, Immunity and Schizophrenia with Emphasis on Underlying Neurochemical Mechanisms	Siegel
Mon	Nov 25	University Closed- No classes	
Wed	Nov 27	University Closed- No classes	
Mon	Dec 2	Cytokines, Immunity and Schizophrenia with Emphasis on Underlying Neurochemical Mechanisms	Siegel
Wed	Dec 4	Autoimmunity and Brain Dysfunction	Siegel
Mon	Dec 9	**Follow-up & Review**	
Wed	Dec 11	**Exam IV**	
		Finals Week	

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.