

IBS 606: INTEGRATED BIOMEDICAL SCIENCES

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* *Course Committee*

** *Course Director*

A. COURSE DESCRIPTION

IBS 606 is a second semester, 4 credit hour course that will consider function of the mammalian organism from a perspective ranging from the cellular/sub-cellular to the organ system and whole organ. It will capitalize upon the IBS series of courses to allow the student to develop a truly integrative appreciation of biologic function.

The course is organized into four basic sections that include (a) the organization and function of the nervous system, (b) control and integration of visceral function, (c) endocrine/neuro-endocrine contributions to homeostasis and (d) immune function. Each section culminates in the consideration of a pathological condition (Alzheimer's disease, hypertension, diabetes and AIDS-cancer) which is intended to exemplify the body's integrative response to a disease state.

For each section, there is at least one discussion session/journal club. This class period will entail discussion of questions assigned by course faculty prior to the class and/or of papers chosen by the faculty or students. The questions will be turned in to the Instructor at the beginning of the discussion session. Questions will be graded and returned to the students. During the discussion session, students may be asked to present their answers to the questions or to discuss the paper(s). Exams will occur after each section.

B. COURSE OBJECTIVES

- To introduce and explore the function of those systems which are primarily responsible for maintaining homeostasis in the face of external and internal challenges.
- To allow the student to apply his/her broad knowledge of cellular function to understand the function of the body at the organ-system and whole animal levels.
- To introduce the mechanisms whereby pharmaceutical agents combat disease processes.
- To introduce the role of immune function in health and disease.

C. FORMAT

The majority of course content will be presented by didactic lectures supplemented with discussion sessions. The content of the lectures will be reinforced with appropriate reading from textbooks, the original literature and other appropriate sources.

D. TEXT

Each faculty member lecturing in this course will be asked to contribute to the required reading list.

E. PREREQUISITES

IBS 601, IBS 603, and IBS 605

F. GRADING

Students will be evaluated on the basis of four written examinations. Examinations will be given during evening sessions that last approximately two hours. Each examination will account for 20% of the total grade. In addition, questions handed in during the Discussion Session class periods will be graded and will account for 20% of the total grade. The grading standards are as follows:

- A: >90%
- B: 80-90%
- C: 70-80%
- D: 60-70%
- E: <60%

Students who perform in these ranges will be guaranteed to receive the indicated grades. Depending on the performance of the class as a whole, some adjustments (curving) may take place on the final cumulative semester grade.

Examinations can be submitted for a re-evaluation if it is deemed that a mistake has been made in the original grading. Resubmissions must be accompanied by a written explanation of the perceived mistake. Upon resubmission, the entire examination will be subject to re-evaluation and all questions therein will be regraded. Examinations for regrade must be submitted to the course director, only, within one week (7 days).

Graduate students will not receive a grade of "D" but instead will receive a failing mark for an average under 70%. All examinations must be taken at the scheduled time except when legitimate medical or personal reasons make it impossible to do so. Prior notification of your absence to the course director is required. In these cases, either an oral or written make-up examination will be given. An "I" grade will not be assigned to students who simply miss an examination.

G. UNDERGRADUATE ENROLLMENT

Graduate and undergraduate students may enroll in the course with the permission of the course director and the Graduate School.

H. OFFICE HOURS

Course directors and instructors will be available for consultation. Students are encouraged to consult with all participating faculty.

I. DAYS, DATES, TIMES

IBS 606 meets in HSLC 115 for one hour on Monday, Wednesday and Friday, 10-10:50 a.m., and one hour on Tuesday, 9-9:50 a.m.. Exams during the semester are 6-8 p.m. in MN363 on the days/dates listed. The final exam is on Thursday, May 6, 10:10 a.m-12:30 p.m. in HSLC 115. Please refer to the Table below for complete scheduling information.

J. LECTURE TOPICS**IBS 606 Integrated Biomedical Sciences**

Day	Date	Lecture Topics	Instructor	Dept.
Wed.	14-Jan	Introduction to Course, CNS Section	Geddes	ANA
Fri.	16-Jan	The Action Potential	Thibault	PHAR
Mon.	19-Jan	<i>Martin Luther King Day</i>		
Tues.	20-Jan	Neurotransmitter Release & Recycling	Whiteheart	BCH
Wed.	21-Jan	Neurotransmitter Systems - Acetylcholine + Catecholamines	Hall	ANA
Fri.	23-Jan	Neurotransmitter Systems - Glutamate/GABA	Geddes	ANA
Mon.	26-Jan	Neurotransmitter Systems - neuropeptides	McGillis	MI
Tues.	27-Jan	Discussion #1 Article Report Due	Geddes	ANA
Wed.	28-Jan	CNS Systems - Overview	Geddes	ANA
Fri.	30-Jan	CNS Systems - Sensory	Geddes	ANA
Mon.	2-Feb	CNS Systems - Motor	Geddes	ANA
Tues.	3-Feb	Disorders of Motor Systems	Geddes	ANA
Wed.	4-Feb	CNS Systems - Cognition	Geddes	ANA
Fri.	6-Feb	Pharmacology of Neural Disease	Hall	ANA
Mon.	9-Feb	Disorders of Cognition	Geddes	ANA
Tues.	10-Feb	Discussion #2 Article Report Due	Geddes	ANA
Wed.	11-Feb	Introduction to Endocrine Physiology & Pharmacol.	Hadley	PHAR
Thurs	12-Feb	Exam 1 (Covers material up to and including Feb 10)	6-8 PM	MN 363
Fri.	13-Feb	Calcium Homeostasis: Parathormone & Vitamin D	Hadley	PHAR
Mon.	16-Feb	Physiology and Pharmacology of Glucocorticoids	Swanson	PHAR
Tues.	17-Feb	Glucose Homeostasis: Insulin and Glucagon	Porter	PHAR
Wed.	18-Feb	Endocrinology of Female Reproduction	Legan	PGY
Fri.	20-Feb	Endocrinology of Male Reproduction	Legan	PGY
Mon.	23-Feb	Pharmacotherapeutics of Estrogen, Progestin Agonists	Kilgore	PHAR

Day	Date	Lecture Topics	Instructor	Dept.
Tues.	24-Feb	Regulation of Growth, Metabolism and Appetite	Kilgore	PHAR
Wed.	25-Feb	Osteoporosis	Hadley	PHAR
Fri.	27-Feb	Discussion #3 Article Report Due	Hadley	
Mon.	1-Mar	Fundamental Concepts of Autonomic Function	Randall	PGY
Tues	2-Mar	Introduction to Renal Function	Jackson	PGY
Wed.	3-Mar	Control of Renal Function	Jackson	PGY
Fri.	5-Mar	Renal Control of Blood Volume	Jackson	PGY
Mon.	8-Mar	Introduction to GI Function	Jackson	PGY
Tues.	9-Mar	Control of GI Function	Jackson	PGY.
Wed.	10-Mar	Striated Muscle Function	Randall	PGY
Thurs	11-Mar	Exam 2 (Covers material up to and including Mar 9)	6-8 PM	MN 363
Fri.	12-Mar	Introduction to Circulatory Function	Randall	PGY
Mon-Fri	15-19 Mar	Spring Break		
Mon.	22-Mar	Heart	Randall	PGY
Tues.	23-Mar	Vascular Function and BP Control	Randall	PGY
Wed	24-Mar	Pulmonary Function	Randall	PGY
Fri	26-Mar	Discussion #4 Article Report Due	Randall	PGY
Mon.	29-Mar	Introduction and Overview of the Immune System	Bondada	MI
Tues	30-Mar	Adaptive Immunity - Immune responses dominated by B lymphocytes I: Humoral Immunity - Antibody structure and function	Bondada	MI
Wed.	31-Mar	Immune responses dominated by B lymphocytes II: Somatic recombination of antigen receptor genes - Diversification of Immune repertoire	Bondada	MI
Fri	2-Apr	Immune responses dominated by T lymphocytes I: Cell mediated immunity and T cell heterogeneity	Snow	MI
Mon	5-Apr	Immune responses dominated by T lymphocytes II: Antigen recognition by T lymphocytes and MHC	Snow	MI
Tues	6-Apr	Cooperation between T and B lymphocytes to produce antibody responses - Memory	Snow	MI
Wed	7-Apr	Innate Immunity - Natural killer cells, Pattern receptors	Bondada	MI
Fri	9-Apr	Immunopathology and Autoimmunity	Bondada	MI
Mon	12-Apr	Discussion #5 Article Report Due	Bondada	MI
Tues	13-Apr	Intro to microbial pathogenesis and infectious disease I	Perry	MI
Tues	13-Apr	Exam 3 (Covers material up to and including April 12)	6-8 PM	MN 363
Wed	14-Apr	Intro to microbial pathogenesis and infectious disease II	Perry	MI
Fri	16-Apr	Microbial manipulation of host	Sinai	MI
Mon	19-Apr	Parasitic infections	Sinai	MI
Tues	20-Apr	Overview of Virus Structure and Life Cycle	Dutch	BCH
Wed	21-Apr	Discussion #6 Article Report Due	Perry	MI

Day	Date	Lecture Topics	Instructor	Dept.
Fri	23-Apr	Viral Entry	Dutch	BCH
Mon	26-Apr	HIV Pathogenesis and Immunity	Bondada	MI
Tues.	27-Apr	HIV and drug design - I	Rodgers	BCH
Wed.	28-Apr	HIV and drug design - II	Rodgers	BCH
Fri.	30-Apr	Discussion #7 Article Report Due	Rodgers	BCH
Thu.	6-May	Final Examination 10:30 Am HS 115	10:30 AM	HS 115