HBY

**Physiology and Biophysics**

**HBY 500: Short Term Research Projects in Physiology and Biophysics**
Short term research project (rotation) under the supervision of a staff member.

*Prerequisite: Must be a Graduate Students in the Dept. of Physiology & Biophysics.*
*Spring, 1-12 credits, Letter graded (A, A-, B+, etc.)*

May be repeated 4 times FOR credit.

**HBY 501: Physiology**
Introduces normal function of human tissues and organs and their regulation by nervous and endocrine systems. Emphasizes the organization and function of physiological control systems and the maintenance of a constant internal environment. Enrollment restricted to fully matriculated graduate students, with permission of instructor. Only Fall.

4 credits, Letter graded (A, A-, B+, etc.)

**HBY 530: Cellular Physiology and Biophysics**
Cellular structure and function. Topics include ion channels, excitability, transport, energetics and metabolism, contraction, secretion, and communication within and between cells. Emphasizes quantitative analysis of cellular processes.

1-3 credits, Letter graded (A, A-, B+, etc.)

**HBY 531: Medical Physiology**
A graduate-level introduction to the physiology of the organ systems with ultrastructural correlations. Ultrastructural correlations are demonstrated in a laboratory setting using histological preparations in conjunction with electron micrographs illustrating the relevant ultrastructure needed to understand the normal functioning of tissues and organs. The physiology of the major organ systems is addressed in a lecture format with the emphasis on problem solving. Relevant clinical correlations are addressed at the end of each block in so far as they illustrate how symptoms and signs of disease result from disordered physiology. Organ Systems addresses the structure and function of the cardiovascular, respiratory, renal, gastrointestinal, endocrine, skeletal, reproductive, and integumentary systems. Prerequisites: Admission to medical or dental school and permission of instructor. Only Spring.

8 credits, Letter graded (A, A-, B+, etc.)

**HBY 545: Principles of Neuroscience**
The aim of this course is to highlight and create an understanding as to how the human nervous system operates.

3 credits, Letter graded (A, A-, B+, etc.)

**HBY 561: Statistical Analysis of Physiological Data**
Statistical methods useful in analyzing common types of physiological data. Topics include probability, data distributions, hypothesis testing with parametric and non-parametric methods, ANOVA, regression and correlation, and power analysis. Emphasis is on experimental design and appropriate, efficient use of statistical software.

*Offered Spring,* 1 credit, Letter graded (A, A-, B+, etc.)

**HBY 562: Model-based Analysis of Physiological Data**
The analysis of common biochemical and physiological data by non-linear regression of data models and biophysical models of physiological and biochemical processes. Examples include binding kinetics, compartmental mass transfer and spectral analysis.

*Prerequisite: Permission of instructor, HBY 561*

*Fall, 1 credit, Letter graded (A, A-, B+, etc.)*

**HBY 564: Experimental Techniques in Systems Physiology**
A series of lectures and laboratory exercises designed to introduce students to in vivo experimental techniques used in systems physiology. Emphasis will be placed on the ethical use of rodents in biomedical research and the measurement of physiological variables. Data acquisition and analysis procedures used in cardiovascular, respiratory, neural, and renal physiology will also be covered. Only

2 credits, Letter graded (A, A-, B+, etc.)

**HBY 570: Student Journal Club**
Graduate student presentation on a selected topic with faculty consultation.

*1 credit, Letter graded (A, A-, B+, etc.)*

May be repeated for credit.

**HBY 590: Special Topics in Physiology and Biophysics**
Students seminars on topics to be arranged through consultation with faculty members. Prerequisite: Permission of instructor.

*Offered Fall and Spring,* 1 credit, S/U grading

May be repeated for credit.

**HBY 591: Physiology and Biophysics Research**
Original investigation under the supervision of a staff member.

1-12 credits, Letter graded (A, A-, B+, etc.)

May be repeated for credit.

**HBY 690: Seminar in Physiology and Biophysics**
Seminars and discussions on major topics in physiology and biophysics by students, staff, and visiting scientists. Prerequisite: Permission of instructor

0-1 credits, S/U grading

May be repeated for credit.

**HBY 695: Practicum in Teaching in Physiology and Biophysics**
Practical experience and instruction in the teaching of physiology and biophysics carried out under faculty orientation and supervision.

1 credit, Letter graded (A, A-, B+, etc.)

May be repeated for credit.

**HBY 699: Dissertation Research on Campus**
Original (thesis) research undertaken with the supervision of a member of the staff.

*Prerequisite: Advancement to candidacy (G5); permission of thesis advisor. Major portion of research must take place on SBU campus, at Cold Spring Harbor, or at the Brookhaven National Lab.*

1-9 credits, S/U grading

May be repeated for credit.

**HBY 700: Dissertation Research off Campus - Domestic**
Prerequisite: Must be advanced to candidacy (G5). Major portion of research will take place off-campus, but in the United States and/or U.S. provinces. Please note, Brookhaven National Labs and the Cold Spring Harbor Lab are considered on-campus. All international students must enroll in one of the graduate student insurance plans and should be advised by an International Advisor.

1-9 credits, S/U grading

May be repeated for credit.

**HBY 701: Dissertation Research off Campus - International**
Prerequisite: Must be advanced to candidacy (G5). Major portion of research will take place outside of the United States and/or U.S. provinces. Domestic students have the option of the health plan and may also enroll in MEDEX. International students who are in their home country are not covered by mandatory health plan and must contact the
Insurance Office for the insurance charge to be removed.

1-9 credits, S/U grading
May be repeated for credit.

**HBY 800: Full-Time Summer Research**

Full-time laboratory research projects supervised by staff members.

S/U grading
May be repeated for credit.