EBH

Human Evolutionary Biology

EBH 200: The Evolution of Human Behavior
An examination of how evolutionary theory informs our understanding of human behavior, psychology and culture. Topics include assessing what behavioral traits are unique to humans and critical to our ecological expansion. Course will provide a synthetic overview of current topics in human behavioral ecology, evolutionary psychology, and gene-culture coevolution. Formerly offered as ANP 200. Not for credit in addition to ANP 200.
Prerequisite: ANP 120 or BIO 201 or BIO 202
DEC: F
SBC: SBS+
3 credits

EBH 204: Research Skills
Gives students an understanding of and experience with the basic research skills that are needed to do biological and anthropological research. The course includes practical skills in reading and understanding anthropological and biological scientific literature, presentation skills, making scientific posters in biology and anthropology, writing complex arguments, and database management. The accompanying lab section introduces the software that is used to acquire these skills and provides students with practical experience in using them with respect to their own research interests. Formerly offered as ANP 204. Not for credit in addition to ANP 204.
Prerequisite: one course chosen from the following: ANP 120, ANT 104, BIO 201, BIO 202, BIO 203
SBC: ESI, SPK
3 credits

EBH 230: Computer-based Biostatistics
An introductory course in statistical analyses, specifically focusing on techniques relevant to research designs in the biological and anthropological sciences. The accompanying lab section will provide students with practical experience in using statistical software to run analyses. Formerly offered as ANP 230. Not for credit in addition to ANP 230.
Prerequisite: satisfaction of entry skill in mathematics requirement or level 2+ on the mathematics placement examination
DEC: C
SBC: QPS

EBH 302: Human Genetics
An introduction to human genetics. Topics include the principles of inheritance, physical properties of DNA and proteins, molecular techniques for studying DNA, the genetic basis of mutations, using DNA to study ancient human history and human evolution, forensic applications of DNA fingerprinting, and the genetic basis of immunity and cancer. Human genetic diseases are discussed and an introduction is given to human chromosome maps, the Human Genome Project, and methods for mapping disease mutations. Formerly offered as BIO 302. Not for credit in addition to BIO 302.
Prerequisite: C or higher in BIO 201 and BIO 202
DEC: E
SBC: STEM+
3 credits

EBH 316: The Evolution of the Human Brain
Provides a detailed overview of how the human brain has evolved, placing it in a broader primate, mammalian, and vertebrate context. Emphasizing the interaction between brain and behavior, the course will detail how adaptation has shaped the brain across millions of years of evolution. The central theme throughout the course will be to what extent we can consider the human brain as ‘special’ compared with other species, and, if so, what sets it apart. Formerly offered as ANP 316. Not for credit in addition to ANP 316.
Prerequisite: ANP 120 or any Biology course
DEC: E
SBC: STEM+
3 credits

EBH 325: Evolution of Sex
Focuses on the ultimate (evolutionary) and proximate (mechanistic) explanations for sex, both as it relates to reproduction, and as it relates to the origin of male and female phenotypes. Unit 1 (Ultimate Aspects of Sex) will review hypotheses related to recombination and anisogamy (different sized gametes), continuing on to sexual selection theory, which is the theoretical backbone for understanding sex differences in morphology and behavior. In Unit 2 (Proximate Aspects of Sex), we take a step back and discuss the genetic and hormonal mechanisms governing sex-typical development. Here we will also address alternative pathways of sexual differentiation, the physiological underpinnings of sexual motivation and sexual response, and puberty. Finally, in Unit 3 (Human Sexuality), we will take these two approaches and apply them to questions of human sexuality, addressing controversial topics such as mate choice, sexuality, sexual coercion, as well as more curious topics such as the evolution of the female orgasm and external testes.
Prerequisite: ANP 120 or EBH 200 (previously ANP 200)
SBC: SPK, STEM+
3 credits

EBH 331: Hormones and Behavior
Examines the relationship between hormones and behavior, both in terms of how hormones affect behavior, and how behavioral interactions can alter hormones. Because hormonal structure and function is remarkably conserved across vertebrates, we will take a comparative approach, exploring data from a variety of vertebrate model systems, while maintaining a keen eye on how such models inform of us about hormones and behavior in humans and non-human primates. Topics to be explored include sex determination, reproductive behavior, personality, dominance and aggression, biological rhythms, the stress response, and the role of endocrine disrupting chemicals in behavior. Formerly offered as ANP 331. Not for credit in addition to ANP 331.
Prerequisite: one of the following courses: ANP 120, BIO 201, BIO 202, BIO 203, PSY 250
SBC: STEM+
3 credits

EBH 359: Behavioral Ecology
A consideration of the patterns of animal behavior in relation to ecological circumstances and evolutionary history. Vertebrate examples are emphasized. Formerly offered as ANP 359 and BIO 359. Not for credit in addition to ANP 359 or BIO 359.
Prerequisite: BIO 201
DEC: E
SBC: STEM+
3 credits

EBH 362: Evolution of Social Complexity
An in-depth examination of how and why social animals establish and maintain relationships with one another, especially in large and fragmented societies. Applying the principles of evolutionary biology and behavioral ecology, this course explores: group structure and stability; conflicts and coalitions; theory of mind and social learning; and culture and communication. Current research on group-living mammals, particularly non-human primates, and human populations is...
highlighted. Formerly offered as ANP 362. Not for credit in addition to ANP 362.
Prerequisite: ANP 120 or BIO 201
DEC: E
SBC: STEM+

3 credits

EBH 370: Advanced Human Genetics
An advanced course in human genetics. Topics include genotype/phenotype associations, the genetic architecture of disease/phenotypes, human population genetics, methylation, and ancient DNA. This class is meant to build on major concepts in human genetic research introduced in other courses. The course will emphasize hands-on engagement with genetic data and critical reading of scientific papers. Computer laboratory analysis/assignments will make up a major component of this class. Students will be evaluated based on computer assignments and a final group research project. EBH majors will have priority to register. Formerly offered also as BIO 303. Not for credit in addition to BIO 303.
Prerequisite: C or better in either EBH 302 (formerly BIO 302) or BIO 320 or EBH 380 (formerly BIO 304)
SBC: TECH

3 credits

EBH 380: Genomics
An introduction to the rapidly developing field of genomics. Initial lectures provide a foundation in genomic structure across the tree of life (prokaryote and eukaryote). This is followed by examination of specific forces that cause variation in genomic content both within and between species. We then discuss how to sequence, assemble and analyze genomes. Finally we focus on the architecture and evolution of the human genome and compare it to non-human primate and ancient hominin genomes, and examine how the study of non-human primates can aid human health. Formerly offered also as BIO 304. Not for credit in addition to BIO 304.
Prerequisite: C or higher in both BIO 201 and BIO 202
Advisory Prerequisite: BIO 211 or EBH 230; EBH 302 (formerly BIO 302) or BIO 312
3 credits

EBH 381: Genomics Laboratory
Provides a computer lab-based introduction to comparative genomics, molecular evolutionary analysis, and next generation sequencing (NGS) data and analysis. Activities will include familiarization with both web-based and command-line tools for analyzing genomic data and summarizing/visualizing results. Lectures and background reading will provide an introduction to basic principles of genomics to inform computer-based hands-on activities. Students will be evaluated based on computer lab assignments, as well as a final group project that applies learned concepts and approaches to a novel research question. Formerly offered as BIO 305. Not for credit in addition to BIO 305.
Prerequisite: C or higher in either EBH 302 (formerly BIO 302) or EBH 380 (formerly BIO 304)
SBC: TECH

3 credits

EBH 391: Topics in Human Evolutionary Biology
Discussion of a topic of current interest in Human Evolutionary Biology. May be repeated as the topic changes.
Prerequisite: ANP 200 or ANP 201 or EBH 302 (formerly BIO 302)
Advisory prerequisite: One other EBH or ANP course
3 credits

EBH 401: Seminar in Evolutionary Biology of Humans
Research and discussion of selected topics in evolutionary biology of humans. May be repeated as the topic changes.
Prerequisite: permission of the instructor
3 credits

EBH 404: Evolution of Parenting
An in-depth examination of previous and current research and theories on the evolution of parental care. Main topics include the evolutionary causes of parental care, the variation of parental care between species, the reasons for exclusive maternal care, conditions for male and alloparental care, conflicts over care, as well as the division of care across sons and daughters. Examples will draw primarily from nonhuman primates and humans but other animals will be considered as well.
Prerequisite: ANP 120 or BIO 201; permission of instructor
3 credits

EBH 405: Life History and Development
Uses life history theory as a framework for exploring the biological processes of the primate and human life cycle (development, reproduction, senescence). We will first construct a solid foundation of life history theory and the principle of energetic tradeoffs. We will then use this foundation to address why species and individuals vary in the pattern and tempo of development, reproduction, and senescence. In the process, we will address questions such as: Why do humans invest so much in offspring and what factors influence individual differences in parental investment? What is the function of menopause? What is the purpose of a prolonged juvenile period (i.e., childhood)? And when and why should the pace of development accelerate or slow down? We will examine these questions from a comparative perspective, drawing not just on studies focusing on humans, but also on those focusing on nonhuman primates and other mammals.
Prerequisite: ANP 120 or EBH 200 (previously ANP 200)
SBC: STEM+

3 credits

EBH 444: Experiential Learning
This course is designed for students who engage in a substantial, structured experiential learning activity in conjunction with another class. Experiential learning occurs when knowledge acquired through formal learning and past experience are applied to a “real-world” setting or problem to create new knowledge through a process of reflection, critical analysis, feedback and synthesis. Beyond-the-classroom experiences that support experiential learning may include: service learning, mentored research, field work, or an internship.
Prerequisite: WRT 102 or equivalent; permission of the instructor and approval of the EXP+ contract (http://sb.cc.stonybrook.edu/bulletin/current/policiesandregulations/degree_requirements/EXPplus.php)
SBC: EXP+
0 credit, S/U grading

EBH 447: Readings in Human Evolutionary Biology
Individual advanced readings on selected topics in Human Evolutionary Biology. May be repeated up to a limit of 6 credits, but not more than two credits may be used toward Human Evolutionary Biology major requirements.
Prerequisite: Permission of instructor and department
1-2 credits, S/U grading

EBH 458: Speak Effectively Before an Audience
A zero credit course that may be taken in conjunction with any EBH course that provides opportunity to achieve the learning outcomes of the Stony Brook Curriculum's SPK learning objective.
EBH 459: Write Effectively in Human Evolutionary Biology
A zero credit course that may be taken in conjunction with any 300- or 400-level EBH course, with permission of the instructor. The course provides opportunity to practice the skills and techniques of effective academic writing and satisfies the learning outcomes of the Stony Brook Curriculum's WRTD learning objective.

Prerequisite: WRT 102; permission of the instructor

SBC: WRTD
0 credit, S/U grading

EBH 475: Undergraduate Teaching Practicum I
Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. The student is required to attend all the classes, do all the regularly assigned work, and meet with the faculty member at regularly scheduled times to discuss the intellectual and pedagogical matters relating to the course. Not for Human Evolutionary Biology Major credit.

Prerequisite: permission of instructor; program approval of EXP+ contract

SBC: EXP+
3 credits, S/U grading

EBH 476: Undergraduate Teaching Practicum II
Work with a faculty member as an assistant in one of the faculty member's regularly scheduled classes. Students assume greater responsibility in such areas as leading discussions and analyzing results of tests that have already been graded. The course in which the student is permitted to work as a teaching assistant must be different from the course in which he or she previously served. Not for Human Evolutionary Biology Major credit.

Prerequisite: permission of instructor; program approval of EXP+ contract

SBC: EXP+
3 credits, S/U grading

EBH 487: Independent Research in Human Evolutionary Biology
Independent research projects carried out by upper-division students. The student must propose the research project, carry it out, analyze the data, and submit the results in a written form acceptable to the sponsor. May be repeated up to a limit of six credits, but no more than three credits of research may be used for Human Evolutionary Biology Major requirements.

Prerequisite: permission of instructor; program approval of EXP+ contract

SBC: EXP+
0-6 credits, S/U grading

EBH 488: Internship in Human Evolutionary Biology
Students work under the supervision of a faculty member or approved local, state, and national public and private agencies and organizations to obtain a career-related experience in human evolutionary biology. Before registering the student must complete an EXP+ contract specifying a format that allows for reporting and reflection on learning outcomes. May be repeated to a limit of 12 credits. Not for Human Evolutionary Biology Major credit.

Prerequisite: permission of instructor; program approval of EXP+ contract

SBC: EXP+
0-12 credits, S/U grading

EBH 495: Senior Honors Project in Human Evolutionary Biology
First course of a two-semester project for EBH majors who are candidates for the degree with honors. Arranged in consultation with the director of undergraduate studies, the project involves independent readings or research and the writing of a paper under the close supervision of an appropriate faculty member on a suitable topic selected by the student. Students enrolled in EBH 495 are obliged to complete EBH 496 the following semester. Students receive only one grade upon completion of the sequence EBH 495-496.

Prerequisite: program approval of EXP + contract; admission to the Human Evolutionary Biology honors program

SBC: EXP+
3 credits

EBH 496: Senior Honors Project in Human Evolutionary Biology
Second course of a two-semester project for EBH majors who are candidates for the degree with honors. Arranged in consultation with the director of undergraduate studies, the project involves independent readings or research and the writing of a paper under the close supervision of an appropriate faculty member on a suitable topic selected by the student. Students receive only one grade upon completion of the sequence EBH 495-496.

Prerequisite: EBH 495 and admission to the EBH honors program

SBC: EXP+
3 credits