

# Human Biology, Health & Society

2019-2020

The requirements listed below pertain to all students matriculating in August 2019 and January 2020.

All of the following sections are required to be completed to graduate.

Courses in areas 1-17 must be taken for a Letter Grade.

Overall Credits (REQUIRED)		
Total: 120 credits	Human Ecology: 43 credits	Human Ecology, outside the major: 9 credits (from DEA, FSAD, HD, PAM any level, or HE at the 3000/4000 level)

## 1. Introductory Chemistry (8 credits)

Choose **one** of the following options:

- (a) CHEM 2070 General Chemistry I (F, 4 cr) and CHEM 2080 General Chemistry II (S, 4 cr) <sup>1</sup>
- (b) (AP Chemistry score of 5 or IB Chemistry score of 6 or 7) and CHEM 2080 General Chemistry II (S, 4 cr) <sup>2</sup>
- (c) (AP Chemistry score of 5 or IB Chemistry score of 6 or 7) and CHEM 2150 Honors General and Inorganic Chemistry (F, 4 cr) <sup>3</sup>

<sup>1</sup> Recommended for nearly all students, especially those on or considering a pre-health (e.g. pre-med) track.

<sup>2</sup> Students may use an AP Chemistry score of 5 or an IB Chemistry score of 6 or 7 to place out of CHEM 2070. Pre-health (e.g. pre-med) students should not use AP scores to fulfill chemistry requirements. Students who take CHEM 2070 forfeit AP or IB credit.

<sup>3</sup> Students should only select option (c) if they are very strong in chemistry and are not considering a pre-health (e.g. pre-med) track.

## 2. Introductory Biology (8 credits)

Choose **one** of the following labs:

- (a) **BIOG 1500** Investigative Lab (F/S, 2 cr) **OR**
- (b) **BIOSM 1500** Investigative Marine Biology Lab (Su, 3 cr)

**AND** choose **two out of the three** lecture options

- (a) **BIOMG 1350** Cell and Development (F/S, 3 cr)
- (b) **BIOG 1440** Comparative Physiology (F/S, 3 cr) **OR\***  
**BIOG 1445** Comparative Physiology (autotutorial) (F/S, 4cr)
- (c) **BIOEE 1610** Ecology and the Environment (F/S, 3cr) **OR\***  
**BIOEE 1780** Evolution and Diversity (F/S, 3cr)

\* Cannot take both to fulfill this requirement

## 3. Physics (4 credits)\*

**PHYS 1101** General Physics I (F/Summer, 4 cr) **OR**

**PHYS 2207** Fundamentals of Physics (F, 4 cr)

\* Pre-health students should also take **PHYS 1102** General Physics II **OR** **PHYS 2208** Fundamentals of Physics.

## 4. Organic Chemistry Lecture (3-8 credits)\*

Choose **one** of the following:

- (a) **CHEM 1570** Elementary Organic Chemistry (S only, 3 cr, *not for pre-health*) **OR**
- (b) **CHEM 3530** Principles of Organic Chemistry (F only, 4 cr) **OR**
- (c) **CHEM 3570-3580** Organic Chemistry for the Life Sciences I and II (F and S, 3 cr each, *must take both, CHEM 3570 alone will not fulfill the requirement*) **OR**
- (d) **CHEM 3590-3600** Honors Organic Chemistry I and II (S and F, 4 cr each, *must take both, CHEM 3590 alone will not fulfill the requirement*)

\* Students interested in pre-health tracks should take a two-course sequence of organic chemistry lectures (option c or d above), in addition to an organic chemistry lab.

## 5. Organic Chemistry Lab (2-4 credits)

- (a) **CHEM 2510** Introduction to Experimental Organic Chemistry (F/S/Summer, 2 cr) **OR**
- (b) **CHEM 3010** Honors Experimental Chemistry (S, 4 cr)

## 6. Physiology (3-4 credits)

Choose **one** of the following:

- (a) **NS 3410** Human Anatomy and Physiology (S, 4 cr) **OR**
- (b) **BIOAP 3110** Animal Physiology (F, 3 cr)

\* Pre-health students should also consider taking **NS 3420** Human Anatomy and Physiology Lab (S, 2 cr).

## 7. Biochemistry (4-6 credits)

Choose **one** of the following:

- (a) **NS 3200** Introduction to Human Biochemistry (F,4 cr) **OR**
- (b) **BIOMG 3300** Principles of Biochemistry (F/S, 4 cr) **OR**
- (c) **BIOMG 3310** Principles of Biochemistry: Proteins and Metabolism (F, 3 cr) **AND** **BIOMG 3320** Principles of Biochemistry: Molecular Biology (S, 2 cr) **OR**
- (d) **BIOMG 3310** Principles of Biochemistry: Proteins and Metabolism (F, 3 cr) **AND** **BIOMI 2900** General Microbiology (F/S, 3 cr) **OR**
- (e) **BIOMG 3330** Principles of Biochemistry: Proteins, Metabolism, and Molecular Biology (Summer, 4 cr) **OR**
- (f) **BIOMG 3350** Principles of Biochemistry: Proteins, Metabolism, and Molecular Biology (S, 4 cr)

## 8. Biology Electives (6 credits)

*6 additional credits selected from didactic courses in the following areas that relate to human biology. Courses are eligible if they require one year of introductory biology or above (e.g. another advanced biology course) as a pre-requisite.*

May not include Special Studies (e.g., NS 4000, 4010, 4020, 4030) or independent research credits (e.g., NS 4990).

- Genetics, recommended (including BIOMG 2800 and 2820)
- Microbiology (including BIOMI 2900, if not used for Biochem req. and VETMI 4310)
- Neurobiology (including BIONB 2210, 2220 and 4280)
- Evolution (may use NS 2750 if **not** used as an HBHS Selective)
- Cell Biology (including BIOMG 4320)
- Physiology (including BIOAP 4890. May use NS 3410 or BIOAP 3110 if both are taken)
- Biochemistry (may **not** include BIOMG 3300, 3310, or 3320, 3350, or NS 3200)
- Nutrition (may use NS 3030, 3220, 3310, 3420, 4310, 4410 – if these are **not** used as a HBHS Selective)

## 9. Survey Course (3 credits)

**NS 1150** Nutrition, Health and Society

## 10. Social Science Perspective on Health Selectives (6+ credits)

*Courses should cover some aspect of health (including nutrition) from a social science perspective. More than half of the course content must be devoted to consideration of health/life course/disease issues from a social science (sociological, anthropological, psychological, and/or economic) perspective. Courses with a focus on public policy related to health or education/counseling related to health are included in this category.*

**NS 2450** Social Science Perspectives on Food and Nutrition (F, 3 cr)

**NS 4250** Nutrition Communications and Counseling (S, 3 cr)

**NS 4450 // AEM 4450** Toward a Sustainable Global Food System: Food Policy for Developing Countries (F, 3 cr)

**NS 4480** Economics of Food and Malnutrition (S, 3 cr)

**NS 4500** Public Health Nutrition (S, 3 cr)

**NS 4570 // ECON 3910** Health, Poverty, and Inequality: A Global Perspective (even F, 3 cr)

**COMM 4760** Population Health Communication (S, 3 cr)

**DSOC 2200** Sociology of Health and Ethnic Minorities (F, 3 cr)

**DSOC 3020** Political Ecologies of Health (S, 3 cr)

**DSOC 3111 // BSOC 3111 // SOC 3130 // STS 3111** Sociology of Medicine (S, 4 cr)

**HD 2180** Human Development: Adulthood and Aging (F, 3 cr)

**HD 2300** Cognitive Development (S, 3 cr)

**HD 2510** Social Gerontology: Aging and the Life Course (S, 3 cr)

**HD 2600 // PSYCH 2750** Introduction to Personality Psychology (F, 3 cr)

**HD 3290** Self-Regulation Across the Life Span (S, 3 cr)

**HD 3300** Developmental Psychopathology (F, 3 cr)

**HD 3490** Positive Psychology (S, 3 cr)

**HD 3570** Social Inequalities in Physical and Mental Health (F, 3 cr)

**HD 3620** Human Bonding (S, 3 cr)

**HD 3700 // PSYCH 3250** Adult Psychopathology (S, 3 cr)

**HD 4570 // SOC 4570** Health and Social Behavior (F, 3 cr)

**HD 4590** Life Transitions Across the Life Span (F, 3 cr)

**HD 4770** Psychopathology in Great Works of Literature (S, 3 cr)

**PAM 2350** The U.S. Health Care System (F, 3 cr)

**PAM 3110** Pharmaceutical Management and Policy (F, 3 cr)

**PAM 3280** Fundamentals of Population Health (F, 3 cr)

**PAM 3780** Sick Around the World? Comparing Health Care Systems Around the World (S, 3 cr)

**PAM 3870 // 5870** Economic Evaluations in Health Care (S, 3 cr)

**PAM 4280 // ECON 3710** Economics of Risky Health Behaviors (S, 3 cr)

**PAM 4370 // ECON 3720** Economics of Health Care Markets (F, 3 cr)

### 11. Natural Science Perspective on Health Selectives (6+ credits)

*Courses should cover some aspect of health (including nutrition) from a life science perspective. More than half of the course content must be devoted to consideration of health/life course/disease issues from a life science/biological perspective (e.g. biochemical, physiological, molecular, evolutionary, neuroscience, or a combination of these). Courses may be focused on use of diet and other health practices for the prevention and/or treatment of diseases or for the improvement of physiological function.*

- NS 2750 Human Biology and Evolution (F, 3 cr)
- NS 3030 Nutrition, Health and Vegetarian Diets (S, 3 cr)
- NS 3060 Nutrition and Global Health (alt odd F, 3 cr)
- NS 3150 Obesity and Regulation of Body Weight (even S, 3 cr)
- NS 3310 Nutrient Metabolism (S, 4 cr)
- NS 3320 Methods in Nutritional Sciences (F, 3 cr)
- NS 3450 Introduction to Physiochemical and Biological Aspects of Food (F, 3 cr)
- NS 4200 Diet and the Microbiome (S, 3 cr)
- NS 4410 Nutrition and Disease (F, 4 cr)
- NS 4420 Implementation of Nutrition Care (F, 3 cr; *enrollment restricted – priority to Dietetics students*)
- NS 6140 Topics in Maternal and Child Nutrition (F, 3 cr)
- NS 6310 Micronutrients: Function, Homeostasis and Assessment (F, 2-4 cr)
- NS 6320 Regulation of Macronutrient Metabolism (S, 4 cr)
- BIOMG 4390 Molecular Basis of Disease (S, 3 cr)
- BIOMI 2500 Public Health Microbiology (F, 3 cr)
- BIOMI 2600 Microbiology of Human Contagious Diseases (S, 3 cr)
- BIOMI 3210 Human Microbes and Health (F, 3 cr)
- BIONB 3215 // FGSS 3210 // LGBT 3210 Gender and the Brain (S, 3 cr)
- FSAD 4390 Biomedical Materials and Devices for Human Body Repair (F, 3 cr)
- HD 2200 The Human Brain and Mind: Biological Issues in Human Development (F, 3 cr)
- HD 3250 Neurochemistry of Human Behavior (S, 3 cr)
- HD 3660 Affective and Social Neuroscience (S, 3 cr)
- HD 4780 Attention Deficit/Hyperactivity Disorder in Children (alt S, 3 cr)
- MSE 4610 Biomedical Materials and Their Applications (S, 3 cr)
- PLPPM 2950 Biology of Infectious Disease: From Molecules to Ecosystems (F, 3 cr)

### 12. Nutritional Science Perspective on Health Selectives (3-4 credits)

*Courses should cover some aspect of health (including nutrition) from a nutritional science perspective. More than half of the course content must be devoted to consideration of health/life course/disease issues from a nutritional science perspective. Courses may be focused on the use of diet for the prevention and/or treatment of diseases or the improvement of physiological function, or on basic nutritional requirements and concerns of individuals and populations.*

- NS 3030 Nutrition, Health and Vegetarian Diets (S, 3 cr)
- NS 3060 Nutrition and Global Health (F, 3 cr)
- NS 3150 Obesity and Regulation of Body Weight (even S, 3 cr)
- NS 4200 Diet and the Microbiome (S, 3 cr)
- NS 4410 Nutrition and Disease (F, 4 cr-4)
- NS 4420 Implementation of Nutrition Care (F, 3 cr; *enrollment restricted – priority to Dietetics students*)
- NS 4450 // AEM 4450 Toward a Sustainable Global Food System: Food Policy for Developing Countries (F, 3 cr)
- NS 4480 Economics of Food and Malnutrition (S, 3 cr)
- NS 4500 Public Health Nutrition (S, 3 cr)

### 13. First Year Writing Seminars (6 credits)

**Note:** The 2 required first year writing seminar courses must be completed during the first two semesters at Cornell.

**14. Social Sciences** (6 credits)

Choose **one** course in any **two** of the following four areas:

*Anthropology*

**ANTHR 1400** The Comparison of Cultures (F, 3 cr)

*Economics*

**ECON 1110** Introductory Microeconomics (F/S/Su/Wi, 3 cr) *\*Counts for Human Ecology credit*

**ECON 1120** Introductory Macroeconomics (F/S/Su/Wi, 3 cr) *\*Does not count for Human Ecology credit*

*Psychology*

**HD 1150** Human Development: Infancy and Childhood (F, 3 cr)

**HD 1170** Adolescence and Emerging Adulthood (S, 3 cr)

**PSYCH 1101** Introduction to Psychology (F/Su, 3 cr)

*Sociology*

**DSOC 1101** Introduction to Sociology (F/S, 3 cr)

**SOC 1101** Introduction to Sociology (F/S/Su, 3 cr)

**15. Humanities** (3-4 credits)

Choose any course with the Course Distribution HA, LA, or CA.

**16. Calculus/Advanced Math** (3-4 credits)

Choose **one** of the following **Calculus/Advanced Math** courses:

(a) **MATH 1105** Finite Mathematics for the Life and Social Sciences (F, 3 cr)

(b) **MATH 1106** Calculus for the Life and Social Sciences (S, 3 cr)

(c) **MATH 1110** Calculus I (F/S/Sum, 4 cr)

(d) **MATH 1120** Calculus II (F/S, 4 cr)

(e) A score of **4 or 5** on the AB or BC Calculus AP Exam\*

*\* See below under Statistics.*

**17. Statistics** (3-4 credits)

Choose **one** of the following:

(a) **STSCI 2150** Introductory Statistics for Biology (F/S, 4 cr) *(recommended)* **OR**

(b) **PAM 2100** Introduction to Statistics (S, 4 cr) **OR**

(c) **AEM 2100** Introductory Statistics (F, 4 cr) **OR**

(d) **BTRY 3010** Biological Statistics I (F, 4 cr) **OR**

(e) **ILRST/STSCI 2100** Introductory Statistics (F/S/Winter/Summer, 4 cr) **OR**

(f) **MATH 1710** Statistical Theory and Application in the Real World (F/S, 4 cr) **OR**

(g) **PSYCH 2500** Statistics and Research Design (F/Summer, 3-4 cr) **OR**

(h) **SOC 3010** Statistics for Sociological Research (F, 4 cr)

(i) A score of **4 or 5** on the Statistics AP Exam\*

*\* CHE students must take either Calculus/Advanced Math or Statistics at Cornell unless they have earned a score of 4 or 5 on the BC Calculus AP Exam. Students in this case may use AP credit for both Calculus/Advanced Math and Statistics.*

**18. Electives** (Variable)

Any courses that are not taken in Areas 1-17 above, count as Electives.

**19. Physical Education Requirement** (2 courses)

Physical Education must be completed in order to graduate. However, physical education does not count toward college and university minimum credit requirements for full-time status, nor does it count towards the 120 credits required for graduation.

**20. Swim Test Requirement**

A successful swim test must be completed in order to graduate.

## College Polices:

- **120 Overall Credits**
  - Students must complete 120 credits toward graduation.
  - A maximum of 15 credits of AP credit and in absentia credit can count towards the 120 total credits.
  - 15 credits of Study Abroad/Exchange, Cornell-In-Washington or 12 credits of Capital semester can count towards total electives.
- **43 HE Credits**
  - Students must complete a minimum of 43 HE credits.
  - HE non-departmental courses at the 2000-level and below do not count toward the 43 HE credits.
  - Students must complete 5 HE credits by the end of the freshmen year and 12 HE credits by the end of the sophomore year.
- **9 HE Credits outside the major**
  - Students must complete a minimum of 9 HE credits outside of NS. These credits are given for any Human Ecology course outside your major (except 4030). These can be taken S/U only if course is NOT used to fulfill a curriculum requirement.
- **Pass/Fail Courses [S/U]**
  - S/U grading option may NOT be used for any required course [Areas 1-17] unless it is the only grade option offered for those courses.
  - S/Us MAY be used for the 9 HE Credits outside the major and for electives in Area 18.
  - Students may apply no more than 12 credits of S/U towards graduation requirements. If a required course is only offered S/U, it will not count towards this limit. Students may take more S/Us if they choose, but the additional credit will not be applied towards graduation.
  - The **deadline for changing grade options is the 57<sup>th</sup> calendar day of the semester**, the same as the “drop” deadline.
- **Special Study Courses [4000, 4010, 4020, 4030]**
  - A maximum of 12 credits of special study course work from Human Ecology or other colleges will count towards the 120 overall credits (e.g. DNS special studies course work includes NS 4000, 4010, 4020, and 4030). Courses will be indicated on the class roster with a Component of either IND or RSC. [Additional credits can be taken but will not be applied.]
  - A maximum of 12 credits of 4000-4030 may count toward the 43 HE credit requirement.
  - A maximum of 3 credits of 4000-4020 (not including 4030) may count towards the 9 credits outside the major requirement as long as the special study is in a department outside the student’s major.
  - Students cannot TA (4030) the same course for credit more than once or take and TA the same course simultaneously. 4030 does not fulfill any requirements towards the major. Registration for 4030 may not exceed 5 credit hours per semester.