

# Fiber Science

2022-2023

The requirements listed below pertain to all students matriculating in August 2022 and January 2023.

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 (courses from DEA, FSAD, HD, NS, PAM at any level or HE at the 3000/4000 level)	Human Ecology, outside the major: 9 credits (from DEA, HD, NS, PAM at any level or HE at the 3000/4000 level)

**1. Fiber Science Core Courses** (26 credits)

Take **all** of the following:

**FSAD 1111** Success in FSAD (not required for internal transfer students)

**FSAD 1350** Fibers, Fabrics, and Finishes

**FSAD 1360** Fiber and Yarn Analysis Laboratory

**FSAD 2370** Structural Fabric Design

**FSAD 3320** Product Quality Assessment

**FSAD 3350** Fiber Science

**FSAD 4360** Fiber Chemistry

**FSAD 4444** FSAD Futures

**FSAD 4460** Nanotechnology of Fibers and Textiles

**FSAD 4660** Textiles, Apparel, and Innovation

**Note:** Courses taken for this area cannot also count for Area 2 (FSAD Introductory Courses) and Area 3 (FSAD Advanced Courses)

**2. FSAD Introductory Courses** (6-8 credits)

Take any **two** additional FSAD courses at the 1000, 2000, or 3000 level

**3. FSAD Advanced Courses** (6 credits)

Take any **two** additional 4000 or 6000 level FSAD courses

FSAD 4000, 4010, 4020, 4030, 4990 cannot count here

**4. Computer Science** (3 credits)

Choose **one** of the following courses:

**CS 1110** Introduction to Computing Using Python

**CS 1112** Introduction to Computing Using MATLAB

**CS 1300** Introductory Design and Programming for the Web (*also INFO 1300*)

If you have a score of 5 on AP Computer Science, then you may substitute one of the following upper level courses:

**CS 2110** Object-Oriented Programming and Data Structures

**CS 2300** Intermediate Design and Programming for the Web

**INFO 2950** Introduction to Data Science

**5. Introductory Chemistry** (8 credits)

Choose **one** of the following sequences:

(a) **CHEM 2070** and **CHEM 2080** General Chemistry I and II

(b) **CHEM 2090** Engineering General Chemistry\* and **CHEM 2080** General Chemistry II

(\*requires written permission from the Chemistry Office of Undergraduate Studies)

**6. Organic Chemistry Lecture and Laboratory** (8 credits)

Take **all** of the following:

**CHEM 3570** Introductory Organic Chemistry

**CHEM 3580** Introductory Organic Chemistry

**CHEM 2510** Introduction to Experimental Organic Chemistry

**7. Physics** (8 credits)

Choose **one** of the following sequences:

(a) **PHYS 1101-1102** General Physics I and II

(b) **PHYS 1112-2213** Physics I: Mechanics & Heat and Physics II: Electromagnetism

(c) **PHYS 2207-2208** Fundamentals of Physics I and II

**8. Materials Science** (3 credits)

**MSE 2610** Mechanical Properties of Materials: From Nanodevices to Superstructures

**9. Additional Science Sequence (6-8 credits)**

Choose from **one** of the following sequences or any other in consultation with your advisor which will require a petition

<b>Apparel Design*</b>	<b>Materials Science and Engineering</b>
<b>FSAD 1450</b> Introduction to Fashion Design <b>AND</b> Choose <b>one</b> of the following: (a) <b>FSAD 2660</b> Activewear Design and Product Development (b) <b>FSAD 3650</b> New Technologies in Fashion Design (c) <b>FSAD 3990</b> Smart Clothing: Design & Programming (d) <b>FSAD 6900</b> Functional Aspects of Design and Clothing *Courses used here may not apply to Areas 2 or 3	<b>MSE 2620</b> Electronic Materials for the Information Age <b>AND</b>  Choose <b>one</b> from the following: (a) <b>MSE 3010</b> Chemistry of Materials (b) <b>MSE 3040</b> Kinetics, Diffusion, and Phase Transformation (c) <b>MSE 3050</b> Electronic, Magnetic and Dielectric Properties of Materials
<b>Environment and Sustainability</b>	<b>Biomedical</b>
Choose from <b>one</b> of the follow two course groups: <b>NTRES 1101</b> Environment & Sustainability <b>AND</b> <b>NTRES 1201</b> Global Water Sustainability <b>OR</b> <b>DEA 3030</b> Materials for Design and Sustainability <b>AND</b> <b>FSAD 3200</b> Global Textile & Apparel Sustainability	Choose <b>one</b> of the following: (a) <b>ENGRI 1310</b> Introduction to Biomedical Engineering <b>OR</b> (b) <b>CHEME 2880</b> - Biomolecular Engineering: Fundamentals and Applications <b>AND</b> <b>MSE 4610</b> Biomedical Materials and their Applications
<b>Physical Chemistry</b>	
Choose <b>one</b> of the following sequences <b>CHEM 2870-2900</b> Introductory Physical Chemistry <b>CHEM 3890-3900</b> Honors Physical Chemistry	

**10. 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.

**11. Psychology (3 credits)**

Choose **one** of the following courses:

**HD 1150** Human Development: Infancy and Childhood

**HD 1170** Adolescence and Emerging Adulthood

**HD 1120** People in Perspective: Brain, Mind, and Society **OR** **PSYCH 1101** Introduction to Psychology

**12. Introductory Microeconomics (3 credits)**

**ECON 1110** Introductory Microeconomics

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

Choose any course with Course Distribution Historical Analysis (HA), Literature and the Arts (LA), or Cultural Analysis (CA).

**14. Statistics (4 credits)**

**Must be taken at Cornell, AP Statistics is not accepted**

Choose **one** of the following courses:

**PAM 2100** Introduction to Statistics

**AEM 2100** Introductory Statistics

**ILRST/STSCI 2100** Introductory Statistics

**PSYCH 2500** Statistics and Research Design

**ENGRD 2700** Basic Engineering Probability and Statistics

**15. Calculus (8 credits)**

Choose **one** of the following sequences:

(a) **MATH 1110-1120** Calculus I and II

(b) **MATH 1110-1220** Calculus I and Theoretical Calculus II

(c) **MATH 1910-1920** Calculus for Engineers and Multivariable Calculus for Engineers

**Note:** A score of 4 or 5 on AP Calculus AB fulfills the Calculus I requirement; a score of 4 or 5 on AP Calculus BC fulfills Calculus I and II requirements.

**16. Linear Algebra (4 credits)**

Choose **one** of the following courses:

**MATH 2210** Linear Algebra

**MATH 2230** Theoretical Linear Algebra and Calculus

**MATH 2310** Linear Algebra with Applications

**MATH 2940** Linear Algebra for Engineers

### 17. Ethics/Sustainability (3-4 credits)

Choose from **one** of the following:

**AEM 3205** Ethics in Business and Organizations

**BEE 3299** Sustainable Development

**BSOC 2061** Ethics and the Environment (also STS 2061/PHIL 2960)

**COMM 4300** Ethics in New Media, Technology, and Communication

**CRP 3011** Ethics, Development, and Globalization

**DEA 4220** Ecological Literacy and Design

**DSOC 3240** Environmental Sociology

**FSAD 3200** Global Textile & Apparel Sustainability

**FSAD 4021/6021** Apparel and Textiles in Developing Nations I/Apparel and Textiles in Developing Nations II

**INFO 1200** Information Ethics, Law, and Policy

**INFO 4270** Ethics & Policy in Data Science

**NTRES 3320** Introduction to Ethics and Environment

### 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 and 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 enroll in a minimum of one 3-credit course each semester in HE for their first four semesters, excluding winter and summer sessions (beginning with students entering in fall 2022).
- **9 HE Credits outside the major**
  - Students must complete a minimum of 9 HE credits outside of FSAD. 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 [Areas 1-17].
- **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. 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 HE 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.