HUMAN-CENTERED DESIGN AND DEVELOPMENT, B.S. (INFORMATION SCIENCES AND TECHNOLOGY)

Begin Campus: Abington, Altoona, Berks, Beaver, Brandywine, DuBois, Erie, Fayette, Greater Allegheny, Harrisburg, Hazleton, Lehigh Valley, Mont Alto, New Kensington, Shenango, Schuylkill, University Park, Wilkes-Barre, Scranton, York

End Campus: University Park

Program Description

The Human-Centered Design and Development major (HCDD) in the College of Information Sciences and Technology is a Bachelor of Science degree program that will educate students in the fundamental concepts and state-of-the-art skills in developing applications of technology for people, with a focus on learning outcomes needed to: a) identify opportunities to support human activity with technology; b) design and create useful and usable technology-mediated activities; and c) evaluate and iterate designed technologies in their context of use. Students graduating with a degree in HCDD will be positioned for successful careers in industry, government, and education, helping to ensure that our world of increasingly complex and pervasive technologies remains aligned with human aspirations, requirements, and limitations.

The HCDD major is interdisciplinary, combining foundational coursework in mathematics, statistics, information technology, and application development with specialized courses in social and psychological aspects of information and technology use, usability engineering, user research methods, and user interface design. The major draws on courses already taught as part of the IST BS degree, but also includes new courses that expand the user-centered analysis and design concepts and methodological rigor needed to succeed as an HCDD professional.

What is Human-Centered Design and Development?

Human-Centered Design and Development is the study of how to identify, design, build, and evaluate technologies to enhance people’s lives. The field focuses on understanding people and their use of technology, the methods and tools used for designing and building effective technology solutions, and the modern information technologies used to create effective solutions. The field involves working with potential users and customers to understand their needs and unique contexts, and then how to design, build, and evaluate impactful products and services. Human-centered design and development integrates ideas from design thinking, human-computer interaction (HCI), interaction design, and user experience design with the skills and techniques needed for software development.

MORE INFORMATION ABOUT HUMAN-CENTERED DESIGN AND DEVELOPMENT (https://ist.psu.edu/prospective/undergraduate/academics/hcdd/)

You Might Like This Program If...

- You are passionate about designing and building interactive technologies
- You want to design, build, and evaluate web, mobile, and other software applications
- You enjoy working with people to understand how they live and how technology fits into their lives
- You want to design, conduct, and interpret data from user studies
- You embrace uncertainty and change, and are not afraid to fail on the path to getting things right

MORE INFORMATION ABOUT WHY STUDENTS CHOOSE TO STUDY HUMAN-CENTERED DESIGN AND DEVELOPMENT (https://ist.psu.edu/prospective/undergraduate/academics/hcdd/)

Entrance to Major

This program currently has administrative enrollment controls. Administrative Enrollment Controls are initiated when limitations of space, faculty, or other resources in a major prevent accommodating all students who request them. Students must follow the administrative enrollment controls that are in effect for the semester that they enter the university.

First-Year Students Entering Summer 2023, Fall 2023, Spring 2024

In order to be eligible for entrance to this major, students must satisfy the following requirements:

- be enrolled in the College of Information Sciences and Technology or the Division of Undergraduate Studies
- 40-70 graded Penn State credits (excludes transfer and AP credits)
- completed with a grade of C or better:
  - HCDD 113 or HCDD 113S
  - IST 140 or CMPSC 121 or CMPSC 131, or CMPSC 101 and IST 240
  - IST 242 or CMPSC 122 and CMPSC 221, or CMPSC 132 and CMPSC 221
  - IST 210, IST 220, STAT 200
- earned a minimum cumulative grade-point average (GPA) of 2.70

Students Who Entered Prior to Summer 2023

Students who entered the University from Summer 2018 through Spring 2023 should view the administrative enrollment controls in the appropriate Undergraduate Bulletin archive (https://bulletins.psu.edu/undergraduate/archive/). Students who entered the University prior to the summer 2018 semester should consult with their academic adviser about the administrative enrollment controls in effect for the semester they entered the university.

Degree Requirements

For the Bachelor of Science degree in Information Sciences and Technology, a minimum of 120 credits is required:

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Education</td>
<td>45</td>
</tr>
<tr>
<td>Electives</td>
<td>6-12</td>
</tr>
<tr>
<td>Requirements for the Major</td>
<td>78-84</td>
</tr>
</tbody>
</table>

15 of the 45 credits for General Education are included in the Requirements for the Major. This includes: 6 credits of GQ courses, 3 credits of GS courses, 6 credits of GWS courses.
Requirements for the Major

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

Select one of the following: 3-6

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 242</td>
<td>Intermediate &amp; Object-Oriented Application Development</td>
</tr>
<tr>
<td>CMPSC 221 &amp; CMPSC 122</td>
<td>Object Oriented Programming with Web-Based Applications &amp; Intermediate Programming</td>
</tr>
<tr>
<td>CMPSC 132 &amp; CMPSC 221</td>
<td>Programming and Computation II: Data Structures and Object Oriented Programming with Web-Based Applications</td>
</tr>
</tbody>
</table>

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required and Inter-Domain courses do not meet this requirement.)

- Quantification (GQ): 6 credits
- Writing and Speaking (GWS): 9 credits

Breadth in the Knowledge Domains (Inter-Domain courses do not meet this requirement.)

- Arts (GA): 3 credits
- Health and Wellness (GHW): 3 credits
- Humanities (GH): 3 credits
- Social and Behavioral Sciences (GS): 3 credits
- Natural Sciences (GN): 3 credits

Integrative Studies

- Inter-Domain Courses (Inter-Domain): 6 credits

Exploration

- GN, may be completed with Inter-Domain courses: 3 credits
- GA, GH, GN, GS, Inter-Domain courses. This may include 3 credits of World Language course work beyond the 12th credit level or the requirements for the student's degree program, whichever is higher: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.
First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

**Cultures Requirement**
6 credits are required and may satisfy other requirements

- United States Cultures: 3 credits
- International Cultures: 3 credits

**Writing Across the Curriculum**
3 credits required from the college of graduation and likely prescribed as part of major requirements.

**Total Minimum Credits**
A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

**Quality of Work**
Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

**Limitations on Source and Time for Credit Acquisition**
The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.

**Integrated B.S. in Human-Centered Design and Development and M.S. in Cybersecurity Analytics and Operations**
*Available at the following campuses: University Park*

Requirements for the Integrated B.S. in Human-Centered Design and Development and M.S. in Cybersecurity Analytics and Operations can be found in the Graduate Bulletin (https://bulletins.psu.edu/graduate/programs/majors/cybersecurity-analytics-operations/#integratedundergradgradtext).

**Integrated B.S. in Human-Centered Design and Development and M.S. in Informatics**
*Available at the following campuses: University Park*

Requirements for the Integrated B.S. in Human-Centered Design and Development and M.S. in Informatics can be found in the Graduate Bulletin (https://bulletins.psu.edu/graduate/programs/majors/informatics/#integratedundergradgradprogramtext).

**Program Learning Objectives**
- **Understanding Humans**: Understanding how humans’ physical and cognitive capabilities inform interaction and experience design.
- **Understanding Context**: Understanding the context and technology requirements of users and other stakeholders, and articulating how design and evaluation concerns are affected by their context.
- **Modeling Human Activity**: Developing models of human activity with and without technology support.
- **Prototyping**: Envisioning, designing, and evaluating new technology prototypes using appropriate interaction modalities, styles and techniques.
- **Developing Production and Technologies**: Developing working, production technologies to address identified design opportunities.
- **Evaluating**: Applying and developing skills in a mix of qualitative and quantitative methods to collect and analyze formative and summative usability data.
- **Managing HCDD Projects**: Selecting, organizing and implementing design and development activities involving users and other stakeholders.
- **Communicating**: Communicating with colleagues, users, and other stakeholders about complex ideas describing actual and envisioned technology in use.
- **Enacting Ethics**: Understanding the importance of professional ethics and enacting these in human-centered design and development practice.

**Academic Advising**
The objectives of the university’s academic advising program are to help advisees identify and achieve their academic goals, to promote their intellectual discovery, and to encourage students to take advantage of both in-and out-of class educational opportunities in order that they become self-directed learners and decision makers.

Both advisers and advisees share responsibility for making the advising relationship succeed. By encouraging their advisees to become engaged in their education, to meet their educational goals, and to develop the habit of learning, advisers assume a significant educational role. The advisee’s unit of enrollment will provide each advisee with a primary academic adviser, the information needed to plan the chosen program of study, and referrals to other specialized resources.

READ SENATE POLICY 32-00: ADVISING POLICY (https://senate.psu.edu/policies-and-rules-for-undergraduate-students/32-00-advising-policy/)

**University Park**
Undergraduate Academic Advising Center
E103 Westgate Building
University Park, PA 16802
814-865-8947
advising@ist.psu.edu

**Harrisburg**
David Kitan
Program Coordinator
Olmsted Building E335
Middletown, PA 17057
717-948-6699
dpk104@psu.edu

**Suggested Academic Plan**
The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2023-24 academic year. To access previous years’ suggested academic plans, please visit the archive (https://
Human-Centered Design and Development, B.S. at University Park Campus

The course series listed below provides only one of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an Academic Requirements or What If report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

First Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCDD 113/113S†‡</td>
<td>3</td>
<td>STAT 200 (GQ)†</td>
<td>4</td>
</tr>
<tr>
<td>IST 140‡</td>
<td>3</td>
<td>IST 242</td>
<td>3</td>
</tr>
<tr>
<td>MATH 110 or 140 (GQ)†</td>
<td>4</td>
<td>IST 210</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 100 or SOC 3 (GS)‡</td>
<td>3</td>
<td>ENGL 15 or 30H (GWS)‡</td>
<td>3</td>
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<tr>
<td>Application</td>
<td>3</td>
<td>CAS 100 (GWS)‡</td>
<td>3</td>
</tr>
<tr>
<td>Focus Selection</td>
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Second Year

<table>
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<tr>
<th>Fall</th>
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<th>Spring</th>
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<tbody>
<tr>
<td>IST 220*</td>
<td>3</td>
<td>IST 311*</td>
<td>3</td>
</tr>
<tr>
<td>HCDD 264†</td>
<td>3</td>
<td>IST 256†</td>
<td>3</td>
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<tr>
<td>IST 230†</td>
<td>3</td>
<td>Application Focus Selection</td>
<td>3</td>
</tr>
<tr>
<td>IST 261†</td>
<td>3</td>
<td>General Education Selection</td>
<td>3</td>
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<tr>
<td>General Education Selection</td>
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<td>Elective</td>
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Third Year

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<th>Spring</th>
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<tbody>
<tr>
<td>HCDD 340†</td>
<td>3</td>
<td>HCDD 364W†</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 202C or 202D (GWS)†</td>
<td>3</td>
<td>IST 361† (or Elective)†</td>
<td>3</td>
</tr>
<tr>
<td>Application</td>
<td>3</td>
<td>CAS 412†</td>
<td>3</td>
</tr>
<tr>
<td>Focus Selection</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>General Education Selection</td>
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<td>General Education Selection</td>
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<td>General Education Selection</td>
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<td>General Education Selection</td>
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Fourth Year

<table>
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<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 411*</td>
<td>3</td>
<td>HCDD 440†</td>
<td>3</td>
</tr>
</tbody>
</table>

IST 402* 3 General Education Selection 3
Application Focus Selection 3
General Education Selection 3 Elective 3
Elective 3

Total Credits 120

* Course requires a grade of C or better for the major
†‡ Course requires a grade of C or better for General Education
# Course is an Entrance to Major requirement
† Course satisfies General Education and degree requirement
‡ 1 credit of IST 495 is required. A grade of “SA” must be earned in this course. This course can be completed at any time before graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of “C” or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and replace both ENGL 30H and CAS 100. Each course is 3 credits.

Application Focus Areas

Students pick one of the application focus areas below or create a custom four-course application focus. Students must pick three credits at the 400 level. All twelve credits must be in the same application focus area.

Psychology

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 244</td>
<td>Introduction to the Psychology of Human Factors Engineering</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 221</td>
<td>Introduction to Social Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 253</td>
<td>Introduction to Psychology of Perception</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 256</td>
<td>Introduction to Cognitive Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 301W</td>
<td>Basic Research Methods in Psychology</td>
<td>4</td>
</tr>
<tr>
<td>PSYCH 370</td>
<td>Psychology of the Differently-Abled</td>
<td>3</td>
</tr>
<tr>
<td>PSYCH 420</td>
<td>Advanced Social Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>
PSYCH 421  Self and Social Judgment  3
PSYCH 423  Social Psychology of Interpersonal/Intergroup Relationships  3
PSYCH 458  Visual Cognition  3

• Note that this assumes PSYCH 100 will be chosen from Additional Courses, as it is a prerequisite for many of these classes.

Sociology
Code  Title  Credits
SOC 207  Research Methods in Sociology  3
SOC 403  Advanced Social Psychology  3
SOC 404  Social Influence and Small Groups  3
SOC 405  Sociological Theory  3
SOC 425  Social Conflict  3
SOC 429  Social Stratification  3
SOC 435/436  Perspectives on Aging  3
SOC 471  Qualitative Research Methods in Sociology  3

• Note that this assumes SOC 3 will be chosen from Additional Courses, as it is a prerequisite for many of these classes.

Informatics
Code  Title  Credits
IST 222H  Community Informatics  3
IST 234N  Digital Cultures  3
IST 237  Digital Entrepreneurship  3
IST 301  Information and Organizations  3
IST 337  Technologies for Digital Entrepreneurs  3
IST 402  Emerging Issues and Technologies  3
IST 437  Digital Design & Innovation  3
IST 431  The Information Environment  3
IST 446  An Introduction to Building Computer/Video Games  3

Security and Risk
Code  Title  Credits
CYBER 100  Computer Systems Literacy  3
SRA 111  Introduction to Security and Risk Analysis  3
SRA 211  Threat of Terrorism and Crime  3
SRA 221  Overview of Information Security  3
SRA 231  Decision Theory and Analysis  3
CYBER 262  Cyber-Defense Studio  3
SRA 268  Visual Analytics  3
SRA 311  Risk Analysis in a Security Context  3
CYBER 366  Malware Analytics  3
SRA 421  The Intelligence Environment  3
SRA 468  Spatial Analysis of Risks  3
SRA 472  Integration of Privacy and Security  3
Any AIR, NAVSC or ARMY

Geographic Information Systems
Code  Title  Credits
GEOG 6N  Maps and the Geospatial Revolution  3
GEOG 260  Geographic Information in a Changing World: Introduction to GIScience  3
GEOG 361  Cartography—Maps and Map Construction  3
GEOG 362  Image Analysis  3
GEOG 363  Geographic Information Systems  3
GEOG 364  Spatial Analysis  3
CAS 101N  Introduction to Human Communication  3
GEOG 461W  Dynamic Cartographic Representation  3
GEOG 463  Geospatial Information Management  3
GEOG 464  Advanced Spatial Analysis  3
GEOG 485  GIS Programming and Software Development  3
Any AIR, NAVSC or ARMY

Digital Arts and Communication
Code  Title  Credits
CAS 101N  Introduction to Human Communication  3
GD 100  Introduction to Graphic Design  3
AA 121  Design Thinking and Creativity  3
COMM 100N  The Media and Society  3
AA 122  Introduction to Graphic Storytelling  3
CAS 175N  Persuasion and Propaganda  3
CAS 215  Argumentation  3
CAS 271N  Intercultural Communication  3
CAS 383N  Culture and Technology  3
CAS 471  Intercultural Communication Theory and Research  3
COMM 190/GAME 140  Gaming and Interactive Media  3
COMM 241  Graphic Design for Communications  3
COMM 310  Digital Media Metrics  3
COMM 325  Effects of digital games  3
COMM 420  Research Methods in Advertising and Public Relations  3
COMM 418  Media Effects: Theory and Research  3
COMM 441  Advanced Graphic Design for Communications  3
COMM 450A  Digital Campaigns  3

• Note that the College of Arts and Architecture is currently developing new courses that will fit into this focus area and added to this list once the new courses are approved and available.

Data Sciences
Code  Title  Credits
DS 120  Scripting for Data Sciences  1
DS 200  Introduction to Data Sciences  4
DS 220  Data Management for Data Sciences  3
DS 310  Machine Learning for Data Analytics  3
STAT 184  Introduction to R  2
DS 300  Privacy and Security for Data Sciences  3
DS 330  Visual Analytics for Data Sciences  3
STAT 380  Data Science Through Statistical Reasoning and Computation  3
DS 402  Emerging Trends in the Data Sciences  3
DS 410  Programming Models for Big Data  3
MIS 301  Business Analytics  3
MIS 431  Business Data Management  3
MIS 441  Business Intelligence for Decision Making  3
MIS 445  Business Intelligence  4

<table>
<thead>
<tr>
<th>Healthcare Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPA 101</td>
<td>Introduction to Health Services Organization</td>
<td>3</td>
</tr>
<tr>
<td>HPA 210</td>
<td>Health Care Payment</td>
<td>3</td>
</tr>
<tr>
<td>HPA 211</td>
<td>Financial Decisions in Health Care Organizations</td>
<td>3</td>
</tr>
<tr>
<td>HPA 332</td>
<td>Health Systems Management</td>
<td>3</td>
</tr>
<tr>
<td>HPA 470</td>
<td>Health Care Information Management</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 210Z</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>HDFS 249N</td>
<td>Adult Development and Aging</td>
<td>3</td>
</tr>
<tr>
<td>HDFS 445</td>
<td>Development Throughout Adulthood</td>
<td>3</td>
</tr>
<tr>
<td>BBH 101</td>
<td>Introduction to Biobehavioral Health</td>
<td>3</td>
</tr>
<tr>
<td>BBH 302</td>
<td>Diversity and Health</td>
<td>3</td>
</tr>
<tr>
<td>BBH 305</td>
<td>Introduction to Global Health Issues</td>
<td>3</td>
</tr>
<tr>
<td>BBH 315</td>
<td>Gender and Biobehavioral Health</td>
<td>3</td>
</tr>
<tr>
<td>BBH 316</td>
<td>Foundations and Principles of Health Promotion</td>
<td>3</td>
</tr>
<tr>
<td>BBH 402</td>
<td>African Health &amp; Development</td>
<td>3</td>
</tr>
<tr>
<td>BBH 432</td>
<td>Biobehavioral Aspects of Stress</td>
<td>3</td>
</tr>
<tr>
<td>BBH 440</td>
<td>Principles of Epidemiology</td>
<td>3</td>
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</tbody>
</table>

* Note that HPA 211 and HPA 332 are currently undergoing prerequisite correction processes. What is shown here is consistent with the Spring 2019 Bulletin, and the listing will be updated as soon as those corrections are made.

**Custom Application Focus**

There is an option for a student to create a custom 4-course application focus sequence. It must be a coherent sequence of courses that provides context for the student in terms of content relevant to the HCDD program. It must contain three credits of 400-level coursework, so it's important to consider course prerequisites when creating your custom application focus area. It must be selected in consultation with a teaching HCDD faculty member and an academic adviser.
Human-Centered Design and Development, B.S. at Commonwealth Campuses

The course series listed below provides only one of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an Academic Requirements or What If report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

<table>
<thead>
<tr>
<th>First Year</th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCDD 113S*</td>
<td>3 IST 220*</td>
<td>IST 256*</td>
<td>IST 230*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 150 or 140 (GQ)†</td>
<td>4 ENGL 15 or 30H (GWS)†</td>
<td>IST 242</td>
<td>IST 220</td>
<td>3</td>
</tr>
<tr>
<td>General Education Selection</td>
<td>3 CAS 100 (GWS)‡</td>
<td>IST 242</td>
<td>IST 220</td>
<td>3</td>
</tr>
<tr>
<td>General Education Selection</td>
<td>3 General Education Selection</td>
<td>IST 242</td>
<td>IST 220</td>
<td>3</td>
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<tr>
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<td>16</td>
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</table>

<table>
<thead>
<tr>
<th>Second Year</th>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>IST 140*‡</td>
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<td>IST 220*</td>
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<td>HCDD 264*</td>
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<td>IST 261 (or Elective)*</td>
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Total Credits 120

* Course requires a grade of C or better for the major
†‡ Course requires a grade of C or better for General Education
# Course is an Entrance to Major requirement
‡ Course satisfies General Education and degree requirement

1 Students may meet the requirement for IST 140 by taking one of the following alternate paths: CMPSC 121, or CMPSC 131, or CMPSC 101 and IST 240
2 Students may meet the requirement for IST 242 by taking one of the following alternate paths: CMPSC 121 and CMPSC 221, or CMPSC 131 and CMPSC 221
3 1 credit of IST 495 is required. A grade of "SA" must be earned in this course. This course can be completed at any time before graduation.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of "C" or better.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and replace both ENGL 30H and CAS 100. Each course is 3 credits.

Application Focus Areas

Students pick one of the application focuses listed on the "University Park Campus" plan or create a custom four-course application focus. It must contain three credits of 400-level coursework, so it’s important to consider course prerequisites when creating your custom application focus area. All twelve credits must be in the same application focus area. Not all application focuses are available at all campuses. See your academic adviser to find out which courses and focuses are available at your campus.
Career Paths
Society increasingly recognizes the need for technologies designed to account for people's capabilities, needs, desires, and limitations. Human-Centered Design and Development graduates have many career paths available to them depending on their strengths, interests, and focus of study.

Students with more technical interests can become web and mobile application developers, front-end developers, and user interface/user experience designers and developers. Those most interested in the human dimension of technology can become usability researchers, interaction designers, and product managers. In addition, there are many opportunities to pursue graduate study in these areas.

MORE INFORMATION ABOUT POTENTIAL CAREER OPPORTUNITIES FOR GRADUATES OF THE HUMAN-CENTERED DESIGN AND DEVELOPMENT PROGRAM (https://www.ist.psu.edu/current/careers/development/process/path/)

Contact
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814-865-3528

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Middletown, PA 17057
717-948-6141
ljc43@psu.edu

https://harrisburg.psu.edu/business-administration/human-centered-design-development-bs