MATH 411  Ordinary Differential Equations  
MATH 412  Fourier Series and Partial Differential Equations  
MATH 417  Qualitative Theory of Differential Equations  
MATH 419  Theoretical Mechanics  
MATH 421  Complex Analysis  

Select 6 credits of 400-level MATH courses  

Supporting Courses and Related Areas  
Select 8-11 credits from department list  

1 Select 6 credits of 400-level MATH courses except:  
   • MATH 401  
   • MATH 405  
   • MATH 406  
   • MATH 441  
   • MATH 470  
   • MATH 471  

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

Knowledge Domains  
   • Arts (GA): 6 credits  
   • Health and Wellness (GHW): 3 credits  
   • Humanities (GH): 6 credits  
   • Social and Behavioral Sciences (GS): 6 credits  
   • Natural Sciences (GN): 9 credits  

Integrative Studies (may also complete a Knowledge Domain requirement)  
   • Inter-Domain or Approved Linked Courses: 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 [http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80](http://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.

**B.A. Degree Requirements**

**Foreign Language** (0-12 credits): Student must attain 12th credit level of proficiency in one foreign language. See the Placement Policy for Penn State Foreign Language Courses ([https://bulletins.psu.edu/undergraduate/general-information/academic-information/advising-planning-degree-program/course-placements/placement-policy-world-language-courses/](https://bulletins.psu.edu/undergraduate/general-information/academic-information/advising-planning-degree-program/course-placements/placement-policy-world-language-courses/)).

**B.A. Fields** (9 credits): Humanities, Social and Behavioral Sciences, Arts, Foreign Languages, Natural Sciences, Quantification (may not be taken in the area of the student's primary major; foreign language credits in this category must be in a second foreign language or beyond the 12th credit level of proficiency in the first language)

**Other Cultures** (0-3 credits): Select 3 credits from approved list. Students may count courses in this category in order to meet other major, minor, elective, or General Education requirements, except for the General Education US/IL requirement.