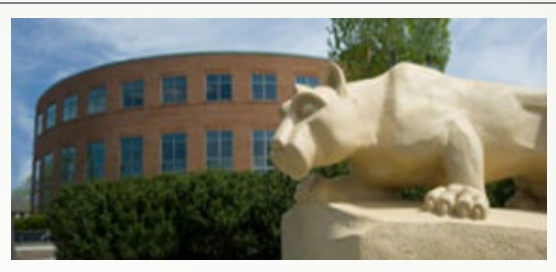## Bachelor of Science in Mathematical Sciences

The two options and variety of course offerings in Mathematical Sciences provide concentrations in various areas such as actuarial science, management science/operation research, statistics, teaching, and preparation for graduate studies.

Contact

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PennState
Harrisburg

School of Science, Engineering, and Technology

Bachelor of Science in Mathematical Sciences

Curriculum

The two options and the variety of the course offerings in Mathematical Sciences provide concentrations in various areas such as actuarial science, management science/operation research, statistics, teaching, and preparation for graduate studies. The secondary education option in this program has been recognized by the National Council of Teachers of Mathematics (NCTM)

Small classes, excellent faculty, opportunities to work with faculty on projects, and strong employment prospects are just some of the strengths of the program. Students will be helped to develop: a solid foundation in mathematical studies; an awareness of the utility of mathematics, statistics, and computers; skills in translating practical problems into mathematical terms; a competency in the use of modern mathematical tools; problem-solving skills; and an awareness of the importance of mathematics in society.

Options
General Option
The General Option is designed for students interested in applying mathematics, statistics, and computer techniques to problems within business and industry. It also provides the broad mathematical background requisite for postgraduate studies in mathematical sciences, statistics, or related disciplines. Advanced study will lead to increased opportunities formed within higher education, business, and industry.

Secondary Education Option
The Secondary Education (Mathematical Science) option is an increasingly popular choice. It provides a background for teaching mathematical studies in secondary school or for pursuing a graduate degree in Mathematics Education. The education requirements include the courses required for Instructional Level I Certification by the Pennsylvania Department of Education.

Courses

For a B.S. degree in Mathematical Sciences, a minimum of 120 credits is required.

For a B. S. degree in Mathematical Sciences with the Secondary Education option, a minimum of 121 credits is required.

PRESCRIBED COURSES (20 credits)

MATH 140 GQ(4), MATH 141 GQ(4) (Sem: 1-2)
ENGL 202C GWS(3) (Sem: 4)
MATH 315(3), MATH 430(3), (Sem: 5)
MATH 401(3), (Sem: 6)

REQUIREMENTS FOR THE OPTION: 64-74 credits

GENERAL MATHEMATICAL SCIENCES OPTION: (64 credits)

PRESCRIBED COURSES (31 credits)
CMPSC121 GQ(3), MATH 230(4) (Sem: 3)
MATH 220 GQ(2), MATH 251(4) (Sem: 4)
MATH 318(3) (Sem: 5)
MATH 455(3), STAT 301GQ(3) (Sem: 6)
MATH 435(3), MATH 475W US;IL(3) (Sem: 7)
MATH 449(3) (Sem: 8)

SUPPORTING COURSES AND RELATED AREAS (33 credits)
Select 6 credits of 200 level or above courses. (Sem: 5-6)
Select 18 credits of 300-400 level Mathematics courses or SSET 295 in consultation with an academic adviser. Up to 6 of these credits may be replaced by any 200 or greater level CMPSC courses or CMPSC 122. (Sem: 5-8)
Select 9 credits of 300-400 level courses in consultation with an academic adviser and in support of the student's interests. (Sem: 5-8)

SECONDARY EDUCATION IN MATHEMATICAL SCIENCES OPTION: (74 credits)

PRESCRIBED COURSES (62 credits)
HD FS 239 GS(3) (Sem: 1-4)
CMPSC121 GQ(3), EDPSY 014(3), MATH 230(4) (Sem: 3)
C I 280 GH(3), MATH 220 GQ(2), MATH 250(3) (Sem: 4)
EDUC 313(2), EDUC 314(3) (Sem: 5)
EDUC 315W US(3), EDUC 458(3), MATH 427(3), STAT 301GQ(3) (Sem: 6)
EDUC 417(3), EDUC 459(3), MATH 435(3), MATH 475W US;IL(3) (Sem: 7)
EDUC 490(12) (Sem: 8)

ADDITIONAL COURSES (3 credits)
Select 3 credits from MATH 425(3) or MATH 449(3) (Sem: 7-8)

SUPPORTING COURSES AND RELATED AREAS (9 credits)
Select 3 credits of literature (GH) from department list. (Sem: 1-3)
Select 3 credits of 100-400 level courses (Sem: 4)
Select 3 credits of 300-400 level courses in Mathematics, Computer Science, Statistics, or Education. (Sem: 5-8)

Undergraduate Admissions Requirements

Minimum high school course requirements for admission to baccalaureate (four-year) degree programs are listed below. Keep in mind that specific programs may have additional requirements or recommendations.

English

Four units, including one unit each in composition and literature, are required.

Social Studies/Art/Humanities

Three units in any combination of social studies, arts, and humanities are required.

World Language

Two units in a single world language other than English are required. However, a student may be admitted with fewer than two units in a world language other than English, but must correct this deficiency by the time s/he earns 60 credits or graduates from Penn State, whichever comes first. This deficiency may be corrected by passing one three- or four-credit college level world language course or by demonstrating proficiency equivalent to two units of high school world language study.

Either a third unit in the same language or an additional unit in a second world language other than English is recommended.

Science

Three units of science are required
Preparation in chemistry and physics is recommended but not required for our Science and Engineering/Engineering Technology programs

Math

Three units of mathematics are required (four are recommended), selected from any combination of algebra, geometry, and trigonometry
Some programs have additional mathematics requirements. Our Business, Engineering/Engineering Technology, and Science programs require one-half unit of trigonometry or higher level math within the required three units

Penn State requires proof of graduation or a GED for admission to four-year degree programs.

*In most high school curricula, one unit = one year.

Visit Undergraduate Admissions: Admissions Requirements for more information (http://goo.gl/eVGAMB)