

## Actuarial Science B.S.A.S

Program: B.S.A.S.

[Department of Mathematical Sciences](#)

College of Arts and Sciences

Kettler Hall 200 ~ 260-481-6821 ~ [ipfw.edu/math](http://ipfw.edu/math)

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### The student learning outcomes for the degree are as follows:

Students who complete the undergraduate actuarial science major should have sufficient preparation in calculus, linear algebra, probability, statistics, financial mathematics, and financial economics to pass the preliminary actuarial science examinations (P, FM, MFE) and obtain VEE credit from the Society of Actuaries in Economic, Finance, and Applied Statistics.

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Programs leading to the Bachelor of Science in Actuarial Science help you prepare for employment in business and industry, or study for advanced degrees.

To earn a bachelor's degree with a major in actuarial science, you must satisfy the requirements of IPFW ([Regulations](#)), the College of Arts and Sciences ([Colleges](#)), and the Department of Mathematical Sciences. Required course work appears below.

## IPFW General Education Requirements Credits: 33

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### [General Education Requirements](#)

## College of Arts and Sciences Requirements: 14

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### English Writing and Speaking

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- See Arts and Sciences Part A for Speaking requirement
- [ENG W233 - Intermediate Expository Writing](#) Cr. 3.
- (or other approved writing course)

### Foreign Language

Requirements in Arts and Sciences Part B Credits: 8

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Of the mathematics courses numbered below 26100, only 16500, 16600, and 17500 apply toward a mathematics degree; statistics courses must be numbered 49000 or higher to be counted. You must have a grade-point average of 2.0 or better with at most one passing grade less than 1.5 in courses used to fulfill the major requirements.

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## Basic Mathematics Core Credits: 18

- [MA 16500 - Analytic Geometry and Calculus I](#) Cr. 4.
- [MA 16600 - Analytic Geometry and Calculus II](#) Cr. 4.
- [MA 26100 - Multivariate Calculus](#) Cr. 4.
- [MA 35100 - Elementary Linear Algebra](#) Cr. 3.
- [MA 36300 - Differential Equations](#) Cr. 3.

## Actuarial Exams Credits: 13 (15 recommended)

(take both STAT courses, must earn grade of C- or higher in each course)

Exam P:

- [STAT 51600 - Basic Probability and Applications](#) Cr. 3.
- [STAT 51700 - Statistical Inference](#) Cr. 3.
- [MA 49000 – Practicum P](#) Cr. 1 (optional but recommended).

Exam FM:

- [MA 27300 - Financial Mathematics](#) Cr. 3.
- [MA 49000 – Practicum FM](#) Cr. 1 (optional but recommended).

Exam MFE:

- [MA 49000 – Models in Financial Economics](#) Cr. 4.

## Validation by Educational Experience (VEE) Credits: 15

A grade of B- or higher in the following STAT, ECON, and BUS courses is required to receive VEE credit from the Society of Actuaries:

Applied Statistical Methods (take both):

- [STAT 51200 - Applied Regression Analysis](#) Cr. 3.
- [STAT 52000 - Time Series And Applications](#) Cr. 3.

Economics (take both):

- [ECON E201 - Introduction to Microeconomics](#) Cr. 3.
- [ECON E202 - Introduction to Macroeconomics](#) Cr. 3.

Corporate Finance (take one):

- [BUS F301 - Financial Management](#) Cr. 3.
- [BUS F303 – Intermediate Investments](#) Cr. 3.
- [BUS F305 – Intermediate Corporate Finance](#) Cr. 3.

## Other Required Credits: 12

- [CS 11400 - Introduction to Visual Basic](#) Cr. 3.
- [STAT 51100 - Statistical Methods](#) Cr. 3.
- [BUS A201 - Principles of Financial Accounting](#) Cr. 3.
- [BUS A202 - Principles of Managerial Accounting](#) Cr. 3.

## Sciences Credits: 11

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Choose three science courses from list below - two of the courses must include a lab:

### Astronomy:

- [ASTR 26400 - Descriptive Astronomy: Stars And Galaxies](#) Cr. 3.
- [ASTR 36400 - Stars And Galaxies](#) Cr. 3.
- [ASTR 37000 - Cosmology](#) Cr. 3.
- [ASTR 40100 - Introduction To Astrophysics](#) Cr. 3.

### Biology:

- [ANTH B200 - Bioanthropology](#) Cr. 3.
- [BIOL 10000 - Introduction to the Biological World](#) Cr. 3.
- [BIOL 10001 - Introduction to the Biological World Laboratory](#) Cr. 1.
- [BIOL 11700 - Principles of Ecology and Evolution](#) Cr. 4.
- [BIOL 11900 - Principles of Structure and Function](#) Cr. 4.
- [BIOL 12600 - Human Biology](#) Cr. 3.
- [BIOL 12700 - Introduction to Human Diseases](#) Cr. 3.
- [BIOL 14000 - Marine Biology](#) Cr. 3.
- [BIOL 18300 - Professional Practice I](#) Cr. 0.
- [BIOL 18400 - Professional Practice II](#) Cr. 0.
- [BIOL 19500 - Special Assignments](#) Cr.0-4.
- or BIOL course numbered 200xx and above

### Chemistry:

- [CHM 10200 - Lectures in Chemical Science for Engineers](#) Cr. 3.
- [CHM 11500 - General Chemistry](#) Cr. 4.
- [CHM 11600 - General Chemistry](#) Cr. 4.
- [CHM 11600 - General Chemistry \(Honors Course\)](#) Cr. 4.
- [CHM 18300 - Cooperative Work Experience I](#) Cr. 0.
- [CHM 18400 - Cooperative Work Experience II](#) Cr. 0.

### Geography:

- [GEOG G107 - Physical Systems of the Environment](#) Cr. 3.
- [GEOG G109 - Weather and Climate](#) Cr. 3.
- [GEOG G237 - Mapping Our World](#) Cr. 3.
- [GEOG G315 - Environmental Conservation](#) Cr. 3-5.

### Geology:

- [GEOL G100 - General Geology](#) Cr. 3-5.
- [GEOL G103 - Earth Science: Materials and Processes](#) Cr. 3.
- [GEOL G104 - Earth Science: Evolution of the Earth](#) Cr. 3.
- [GEOL G108 - Selected Earth Science Topics](#) Cr. 1-3.
- [GEOL G113 - Directed Study in Earth Science](#) Cr. 1-2.
- or GEOL course numbered 200xx and above

### Physics:

- [PHYS 12700 - Physics for Computer Graphics and Animation](#) Cr. 3.
- [PHYS 15200 - Mechanics](#) Cr. 5.
- or PHYS course numbered 200xx and above

**Note:** Check with the Mathematics Department for updates to this list.

## General Elective Courses

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Sufficient additional credits, if necessary, to bring the total to 120.

**Total Credits: 120**

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### Notes:

- A course taken as a required course cannot be counted toward the electives.
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