

## Aerospace Studies

FINC	321	Financial Management
MATH	113	Calculus I
MATH	114	Calculus II
MATH	200	Multi-Variable Calculus
MATH	210	Linear Algebra and Differential Equations
MATH	313	Probability
MATH	314	Mathematical Statistics
MGMT	340	Management I (2 credits)

A course in risk management and insurance approved by the program director

*Plus one of:*

MATH	333	Applied Statistical Methods: Regression, Time Series, Forecasting
MATH	385	Mathematical Methods of Numerical Analysis

*Allied Requirements:*

*One of:*

QMCS	130	Problem Solving in the Natural Sciences
QMCS	237	Software Design using Scientific Languages

*Plus one of:*

COMM	103	Public Speaking
COMM	104	Communication in the Workplace
ENGL		200 or above
JOUR	215	Journalistic Writing in the Workplace
JOUR	311	Persuasion in Writing

*Suggested Electives:*

BLAW	365	Business Law
ECON	251	Principles of Macroeconomics
FINC	324	Advanced Financial Management
FINC		400-level Investment Courses
MBIS	701	Insurance Seminar
MKTG	300	Principles of Marketing
QMCS	280	Object-Oriented Design and Programming
QMCS	450	Database Design

### 264 Theory of Interest (MATH 264)

A survey of topics in the mathematical analysis of financial transactions which involve payments made over time. Specific areas of concentration will include the time value of money; the analysis of annuities; amortization and sinking funds; and the pricing and rates of return on investments. Both continuous time and discrete time problems will be considered.

Prerequisite: MATH 114.

### 351 Foundations of Actuarial Mathematics

The course covers the theory and applications of contingency mathematics in the area of life and health insurance, annuities and pensions from both the probabilistic and deterministic approaches. Topics will include: survival distributions, actuarial notation, life insurance and life annuities, net premiums and reserves.

Prerequisite: 264 and MATH 313.

### 352 Actuarial Contingencies

Extension of the analysis of 351 to multiple life functions and multiple decrement theory. Topics will include: multiple life functions and multiple decrement models, valuation of pensions, insurance models including expenses, nonforfeiture benefits and dividends.

Prerequisite: 351

## Advertising

*See Department of Journalism and Mass Communication.*

## Aerospace Studies (AERO)

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Aerospace Studies is the official designation of the Air Force Reserve Officer Training Corps (AFROTC) program of instruction. Aerospace Studies is a dynamic college discipline designed to give female and male students an opportunity to concurrently complete ROTC coursework with degree coursework so that participants qualify for commissions in the United States Air Force as they

complete their bachelor's degree requirements. Cadets are commissioned as second lieutenants upon graduation. Coursework offers students the occasion to widen their perspective; sharpen their sense of responsibility; develop their ability to organize, motivate, and lead others; and acquire a maturity of judgment that can be a source of strength and self-confidence throughout their careers.

The Aerospace Studies program does not require a student to major in any certain field, but rather, complements the academic major of choice. It is possible to minor in Aerospace Studies and use Aerospace Studies courses as elective credits. These courses are offered at St. Thomas, but students at any of the five Associated Colleges of the Twin Cities (ACTC) consortium – St. Thomas, St. Catherine, Augsburg, Hamline, and Macalester – may take the courses. Through crosstown agreements, students at Bethel, Concordia, North Central Bible, Northwestern, William Mitchell, Anoka-Ramsey, Inver Hills, Century, Normandale, North Hennepin, and the University of Wisconsin-Stout may also take aerospace studies courses.

The aerospace studies curriculum is divided into two phases: the General Military Course (GMC) in the freshman and/or sophomore years, and the Professional Officer Course (POC) in the junior and senior years. Cadets in the GMC have no service commitment whatsoever, unless they receive an Air Force ROTC scholarship. Students must voluntarily apply for the POC. All POC cadets are obligated to serve as an officer for four years on active duty after graduation (Active duty commitments are currently six years for navigators and eight years for pilots after completing flight training.) Additionally, the cadet must temporarily serve in a reserve component, if the active duty time does not fulfill the contractual service commitment.

An integral part of all aerospace studies classes is Leadership Laboratory. Instruction is conducted within the framework of an organized cadet corps with a progression of experiences designed to develop leadership potential. Leadership Laboratory involves a study of Air Force customs and courtesies, drill and ceremonies, career opportunities in the Air Force, and the life and work of an Air Force junior officer. Leadership potential is developed in a practical, supervised laboratory.

The Air Force offers four-, three- and two-year college scholarships. See “Scholarships not awarded by the university” in the Financial Services section of this catalog.

Most students complete Air Force ROTC via the four-year program, during which both the GMC and the POC are completed. If a student does not enroll in the freshman year, both the freshman and sophomore classes can be taken during the sophomore year. This is followed by a four-week field training session at an active-duty Air Force base, normally between the sophomore and junior years. Students in the program receive a salary and room and board while at field training.

In the summers between the freshman and sophomore, and the junior and senior years, the student may opt to go on an internship in a chosen career field at an active Air Force base. All advanced training is paid by the Air Force.

If the student does not enroll in Air Force ROTC until spring semester of the sophomore year, a commission can be earned through the two-year program. However, the student will attend a six-week field training session instead of the four-week session. The extra two weeks provide the academic training that would have been received in the GMC. Upon successful completion of the six-week field training session, the cadet may enter the POC to complete the remaining two years. The student is still eligible for the internships and advanced training the following year, and can compete for a scholarship. To apply for the two-year program, the Department of Aerospace Studies must receive a completed application package no later than February 1 of the sophomore year. Note: The application process usually takes five weeks.

St. Thomas offers its students who are winners of Air Force ROTC scholarships up to full subsidy (room and board and remaining tuition) on almost every Air Force ROTC scholarship awarded. For information call the AFROTC Unit Admissions Officer at (651) 962-6329.

The Minor in Aerospace Studies is open to all undergraduate students at the University of St. Thomas. Students need not also enroll in Air Force ROTC. If they choose to take AERO classes without also enrolling in Air Force ROTC, they are not eligible to take the second option listed below. Also, these students are excused from the accompanying Leadership Laboratories. However, a student who enrolls in AERO courses without also enrolling in Air Force ROTC may participate in Leadership Laboratory if s/he would otherwise be eligible for Air Force ROTC, with approval from the department chair. Further, if a student did not complete the Leadership Laboratories and later wished to enroll in AFROTC, s/he must make up the missed Leadership Laboratories.

While the courses are intended to be taken sequentially, students may complete the minor by taking more than one AERO class per term, with the permission of the department chair.

All of the coursework generally contributes to and enhances the human diversity objectives of the university. Additionally, AERO 321, 322, 421, and 422 also enhance the university's computer competency goals, particularly in their requirement for submission of written papers and verbal presentations requiring visual aids (computer generated, for the most part).

## Aerospace Studies

### Minor in Aerospace Studies

Student must complete twenty credits. This requirement must be accomplished by completing one of the following sequences:

- 111 Air Force Today I (1 credit)
- 112 Air Force Today II (1 credit)
- 211 Development of Air Power I (1 credit)
- 212 Development of Air Power II (1 credit)

*or*

- 250 Six-Week Field Training\*
- \*Open only to students enrolled in Air Force ROTC

*Plus:*

- 321 Leadership and Management I
- 322 Leadership and Management II
- 421 National Security Forces in Contemporary American Society I
- 422 National Security Forces in Contemporary American Society II

### 111 Air Force Today I 1 credit

This course focuses on the basic characteristics of air doctrine, U.S. Air Force mission and organizations, customs and courtesies, officer opportunities and benefits, professionalism and officership, and an assessment of written and oral communicative skills. One class-hour per week, plus a weekly one-hour Leadership Laboratory consisting of Air Force customs and courtesies, Air Force environment, and drill and ceremonies.

### 112 Air Force Today II 1 credit

Continuation of 111  
Prerequisite: 111

### 211 Development of Air Power I 1 credit

This course focuses on factors contributing to change in the nature of military conflict, the development of air power from its earliest beginnings through two world wars, the evolution of air power concepts and doctrine, the role of technology in the growth of air power, a history of air power employment in military and nonmilitary operations in support of national objectives, ethics and values, introduction to leadership and development of written and oral communicative skills. One class-hour per week, plus one additional hour each week of Leadership Laboratory consisting of Air Force customs and courtesies, Air Force environment, drill and ceremonies and field training orientation. Prerequisite: 112 or permission of instructor

### 212 Development of Air Power II 1 credit

Continuation of 211  
Prerequisite: 211

### 250 Six-Week Field Training (111, 112, 211, 212)

Training and evaluation on an Air Force base during the summer. Training is designed 1) to fulfill the course goals of the General Military Course (GMC) normally taken during the regular school year; 2) the experience is designed to develop military leadership and discipline, provide AF officership training, orientation and motivation, and determine officer potential. These objectives are provided to conform to the standards of a structured military environment as well as teach the participant how an Air Force base operates. The syllabus provides a minimum of 385 hours of scheduled activities – 185.5 hours of total core curriculum hours consisting of Air Force orientation, leadership training, and officership training. Additional hours are required for Flight Training Officer Time (FTOT) and cadet meetings, etc. Required for all two- and one-year program cadets prior to entry into 321.

### 321 Leadership and Management I

An integrated leadership and management course emphasizing the concepts and skills required by the successful officer. The curriculum, providing the foundation for the development of the junior officer's professional skills, includes individual motivational and behavioral processes, communication and group dynamics, and the art and science of leadership. Course material on the fundamentals emphasizes decision making and the use of analytical aids in planning, organizing and controlling in a changing environment as necessary professional concepts. Organizational and personal ethics, management of change, organizational power and politics, and managerial strategy and tactics are discussed. Actual Air Force case studies are used throughout the course to enhance the learning and communicative processes as a means of demonstrating and exercising practical application of the concepts being studied. Within this structure, continued emphasis is given to the refinement of communicative skills. Specifically, one of the course goals is for each student to effectively apply listening, speaking, and writing skills in Air Force-peculiar formats and situations with accuracy, clarity,

and appropriate style. Another aligned goal is to comprehend selected concepts, principles, and theories of Quality Air Force leadership and management (Total Quality Management). Three class-hours per week. A one-hour weekly Leadership Laboratory complements the academic course by providing advanced experience in officer-type activities, giving the cadets the opportunity to apply the leadership and managerial principles of this course.

Prerequisite: 212 or 250

### **322 Leadership and Management II**

Continuation of 321.

Prerequisite: 321

### **421 National Security Forces in Contemporary American Society I**

This course provides future Air Force officers with a background in national security policy and issues while stressing responsibilities of the military officer and civilian-military relationships. They include: an examination of the needs for national security, an analysis of the evolution and formulation of American defense policy and strategy, aerospace doctrine, an examination of the methods for managing conflict, an extensive study of alliances and regional security to preserve American interests around the world, an analysis of arms control and the threat of war and terrorism. Special topics focus on the military as a profession, officership, the military justice system, and transition from civilian to military life. Within this structure, continued emphasis is given to the refinement of communicative skills. Three class-hours per week, plus an additional one-hour weekly Leadership Laboratory, consisting of advanced leadership experiences in officer-type activities.

Prerequisite: 322

### **422 National Security Forces in Contemporary American Society II**

Continuation of 421.

Prerequisite: 421

The following courses allow students to gain credit for certain non-classroom experiences. Permission of department chair is required. A maximum of three credits may be applied, two of which must be from 450, Four-Week Field Training (FT), except for cadets participating in 451, Cadet Training Assistant (CTA), who are able to accrue a maximum of five credits of experiential learning toward the 132 credits required for graduation. Graded on S-R basis.

### **450 Four-Week Field Training**

**2 credits**

Training and evaluation on an Air Force base during the summer. The experience is designed to develop military leadership and discipline, provide AF officership training, orientation and motivation, and determine officer potential. These objectives are provided to conform to the standards of a structured military environment as well as teach the participant how an Air Force base operates. The syllabus provides for a minimum of 270 hours of scheduled activities—157 hours of total core curriculum hours consisting of Air Force orientation, leadership training, and officership training. Additional hours are required for Flight Training Officer Time (FTOT) and cadet meetings, etc.

Prerequisite: 212

### **451 Cadet Training Assistant (CTA)**

**2 credits**

A cadet who previously completed Field Training and who successfully competes to be assigned as a staff member in a 4- or 6-week field Training. Discharges staff responsibilities to meet the objectives described in AERO 450.

### **452 Professional Development Training (PDT)**

**1 credit**

The objective of PDT is to provide opportunities to cadets to gain knowledge and appreciation for the human relations and leadership challenge encountered by junior Air Force officers. Further, the program is designed to motivate cadets in their pursuit of an Air Force career. Normally open to junior and senior contracted cadets who have completed Field Training. However, selected AERO 100 cadets may participate in some of the PDT programs.

## **Art History (ARTH)**

Stansbury-O'Donnell (chair), D'Alleva, Swanson, Webster, Nordtorp-Madson\*, Welch\*

The visual arts constitute the physical legacy of past as well as present civilizations. Whether in the form of painting, sculpture, architecture, pottery, textiles, photography, or other media, they express the myths, beliefs, and structures of society, allowing us to glimpse the vision of the individuals and culture who created the works. Understanding the art and artifacts of earlier times and of other cultures gives us greater insight into our own culture and its legacy.

The Art History program offers a comprehensive, chronological and geographical exploration of the arts and architecture of the Western and non-Western worlds. Courses include an emphasis upon the critical evaluation and analysis of works of art, and exploration of the cultural, social, polit-