

## OFFICER EDUCATION

Military instruction began at Cornell University in 1868 under the provisions of the Morrill Act of 1862. Since that time, officer education has been highlighted by the construction of Barton Hall in 1914 and the establishment of a formal Reserve Officers Training Corps (ROTC) unit in 1917. The program evolves to keep pace with the latest military changes and emphasizes the development of leadership and managerial skills. Cornell's Officer Education Program has produced many outstanding civilian and military leaders.

The Officer Education Programs prepare students for a commission as an officer in either the United States Army, Navy, Air Force, or Marine Corps. Each service program is headed by a senior military officer who also serves as a full professor on the Cornell faculty.

### MILITARY SCIENCE

Lieutenant Colonel John M. Keefe, Engineer, United States Army, Professor of Military Science and Commanding Officer, U.S. Army ROTC Instructor Group

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### United States Army ROTC Program

The primary objective of the Army Officer Education Program at Cornell is to commission the future officer leadership of the United States Army. Intermediate objectives are to provide students with an understanding of the fundamentals of responsibility, integrity, and self-discipline, as well as an appreciation of the citizen's role in national defense. The application of the decision-making process to a variety of situations is given major emphasis as a valuable aid in developing leadership potential. These objectives are achieved through a program normally covering four years. A two-year program is available for those who qualify. The program includes specific courses in military science, more general academic subjects that assure a well-rounded education, practical training in leadership through participation in the Cadet Corps (including attendance at one six-week summer camp at an Army installation), and the opportunity to participate in a number of extracurricular activities. The combination prepares the student for commissioning and effective performance in the many branches of the Army. The student's academic major, academic performance, leadership ability, personal desires, and the needs of the Army determine the branch of the Army in which the student is commissioned upon graduation.

### Requirements for Enrolling

Applicants must be citizens of the United States and be able to obtain a Secret level security clearance prior to being commissioned as lieutenants. (Noncitizens may enroll in selected portions of the program.) Students must meet Army medical requirements. Overall sound mental and physical condition is essential, and students are required to undergo periodic physical fitness tests. Enrollment and continuation in the program is subject to the approval of the Professor of Military Science. Enrollment in specific courses by students not formally enrolled in the program must be approved by course instructors. Contracted students must register for letter-grade military science classes and leadership laboratories for the purpose of commissioning into the United States Army.

### Four-Year Program

The Four-Year Program is open to students in their freshman year or, with the approval of military and university authorities, to sophomores in a five-year degree program. Veterans of the Armed Forces of the United States and students entering Cornell with AROTC credit from secondary or military schools (Junior Division AROTC) may receive advanced standing, if qualified. Under the Four-Year Program students enroll in the Basic Course (Mil S I and II) during the first two years, and the Advanced Course (Mil S III and IV) during the next two years. A total of 12 credits of military subjects are taken. In addition, academic-enrichment courses are required in such fields as written communications, computer science, and military history. All cadets attend a five-week camp, with pay, between the junior and senior years. All cadets participate in physical fitness training three days per week. Each year selected cadets are sent to the Army's Airborne School, Winter Survival School, and Air Assault Course, depending upon availability and student standings within the ROTC program.

### Basic Course (Mil S I and Mil S II)

Students in the first year of the Basic Course take one classroom course in military science in the fall and spring semesters, for which they receive academic credit depending upon their college. These courses include study of the U.S. organization for defense and principles and techniques of leadership and management.

Students also participate in leadership modules that include rappelling, orienteering, drill and ceremony, physical training, winter survival, rifle marksmanship, historical site visits, land navigation, interpersonal communication, and individual tactical training. These modules are designed to promote personal development and enrichment. While they do not receive academic credit for these activities, students may receive physical education credit. Typical freshman participation in Army officer education is 48 1/2 program-related hours.

During the fall of the second year, students take a two-credit course in American military history. The course consists of instruction in three primary areas. The first section develops the concept of the art and theory of modern warfare. It analyzes America's first attempt at war, the American Revolution, and ends with the development of modern warfare under Napoleon Bonaparte. The second section focuses on America at war in the nineteenth century. Section three focuses on warfare in the twentieth century and concludes with the prospects of future actions for the military.

During the spring of the second year, students take a one-credit course in map reading and spend approximately two hours a week in practical leadership training, land navigation, and military skills.

### Advanced Course (Mil S III and Mil S IV)

The Advanced Course of the Four-Year Program is open to students who have successfully completed the Basic Course and are accepted by the Professor of Military Science for further enrollment. It is also open to students who have gained appropriate advanced standing through either successful completion of Basic Camp, a six-week summer training camp, or prior military training. Students entering the Advanced Course must have the equivalent of four academic semesters remaining at Cornell or another degree-granting institution. Students must pass required physical and aptitude tests. In addition, the past performance and desire of each student is evaluated to determine potential for eventual commissioning.

When students are accepted for the Advanced Course or accept a scholarship, they sign a written contract with the U.S. government. Under terms of the contract, they agree to complete the Advanced Course and to accept a commission if offered. Concurrently with the signing of the contract, students enlist in the United States Army Reserve.

Classroom study in the Advanced Course includes one military science course each semester on such subjects as leadership and management, small-unit tactics, and command and staff organization and functions. The two hours a week of practical leadership training continues, and between the junior and senior years all cadets attend a five-week advanced summer camp conducted at Ft. Lewis, Washington.

### Scholarships

Scholarships are awarded on the basis of merit and may be available for two, three, or four years. AROTC scholarships are awarded each year to outstanding Basic Camp participants and students in the freshman and sophomore classes. Scholarships pay up to \$16,000 toward tuition and mandatory fees. Scholarship cadets and Advanced Course cadets also receive \$200 a month for up to ten months a year. Scholarship cadets also receive \$450 per year toward the cost of text books.

## Commissioning

All students who successfully complete the Advanced Course, including the advanced summer camp, are commissioned as second lieutenants in the United States Army upon graduation.

## Service Obligations

ROTC graduates may serve on Active Duty, in the Army Reserve, or in the National Guard, depending upon the needs of the Army and the leadership abilities of the cadet. Officers beginning active duty attend the Officer Basic Course (normally 10 to 16 weeks) of their assigned branch. Upon completion, officers are assigned to a unit and location determined by the desires of the individual and the requirements of the Army. Officers selected for reserve duty attend the Officer Basic Course, after which they are released to reserve status.

ROTC graduates generally serve four years on active duty and four years in reserve status; however, some may serve eight years on reserve duty.

## Choice of Branch

Cadets in the second year of the Advanced Course (normally the senior year) may specify the branch of the Army—such as Infantry, Armor, Field Artillery, Air Defense Artillery, Aviation, Corps of Engineers, Signal Corps, Military Police, Military Intelligence—in which they prefer to serve. They are notified in December of the branch to which they are assigned. Appointment in a chosen branch depends upon the student's academic and officer education performance, degree area, and the needs of the Army at that time.

## Graduate Study

Active duty deferments, or educational delays, may be granted to individuals who want to attend graduate school at their own expense. Requests will be considered on the basis of needs of the service. Admission to graduate school is the student's responsibility.

## Benefits

Each cadet in the Advanced Course (Mil S III and Mil S IV) receives \$200 a month for up to 10 months a year. While attending the advanced summer camp (between the junior and senior years), each cadet receives approximately \$700. A cadet in the Two-Year Program receives the same payments as cadets in the Advanced Course and, in addition, receives approximately \$700 for summer Basic Camp attendance before entering the Advanced Course.

## Military Science Courses

All cadets take one course and a leadership laboratory each semester in military science. The number of hours a week spent in the classroom varies from semester to semester, as does the credit received for each course.

### Freshman Year (Mil S I)

#### Mil S 101 United States Organization for Defense

Fall. 1 credit. Required. B. Edholm. Students examine the U.S. defense structure in terms of organization, mission, personnel, and relationships among and between military forces and branches and departments of the government. The U.S. Army force structure is

examined at all levels. The complexities and magnitude of operating the defense organization are studied to provide a framework for subsequent instruction. Students develop skills in conducting oral and written presentations.

#### Mil S 102 Leadership Theory

Spring. 1 credit. Required. B. Edholm. This course allows students to develop a basic understanding and appreciation of theories of social and organizational psychology and behavior as they apply to the military setting. Attention is given to leader types, the source and exercise of authority, and the impact of varying styles of leadership, resource management, motivation, and organization effectiveness. The student is introduced to the concepts of integrity, ethics, and professionalism. Classes on historical events and strategy are also presented.

### Sophomore Year (Mil S II)

#### Mil S 222 Small Organizational Operations/Land Navigation

Spring. 1 credit. Required. Prerequisite: Mil S 102 or instructor approval. J. Lopez. Students learn the basic principles of group dynamics at the level of the smallest military unit, the squad. Troop-leading procedures are introduced through case studies and role-playing exercises. Leadership theories introduced in Mil S 102 are examined in a variety of realistic settings. The practical application of behavioral theories is explored in the context of small military organizations. The course will also provide practical knowledge of the various forms of topographic representation. Students will use maps in terrain association and land navigation. Knowledge of topography is complemented by an orientation on significant environmental influences of physical, social, and climatic factors. Portions of the course offer experience in land navigation and orienteering.

#### Mil S 321 Armed Conflict in Society

Fall. 2 credits. Required. J. M. Keefe. This course provides practical knowledge in American Military History. It is primarily an overview course designed to provide an understanding of the art and nature of warfare and particularly how warfare has affected the United States. The course consists of three primary areas of instruction with an emphasis on American military history. The first area of instruction addresses the art and theory of modern warfare. It analyzes America's first attempt at war, the American Revolution, and ends with the development of modern warfare under Napoleon Bonaparte. The second phase focuses on America at war in the nineteenth century. It places particular emphasis on the American Civil War and the strategy of annihilation versus the strategy of attrition. The final phase looks at warfare in the twentieth century and finishes with an analysis of the future of warfare for the military of the United States.

### Junior Year (Mil S III)

#### Mil S 331 Theory and Dynamics of the Military Team

Fall. 2 credits. Required. R. Brown. After an initial introduction to techniques of presenting briefings, students are provided with a broad understanding of the principles and application of teamwork in military organizations. Particular emphasis is given to leadership responsibilities of the commander as the team coordinator. This course helps

students develop an understanding of the roles and contributions of the various branches of the Army in support of the military team.

#### Mil S 332 Leadership in Small-Unit Operations

Spring. 2 credits. Required. Prerequisite: Mil S 331. R. Brown.

This course provides an understanding of the nature of decision making and the tactical application of the military team. Through the use of conferences and extensive practical exercises, students develop familiarity with the factors influencing a leader's decisions and the process of planning, coordinating, and directing the operations of military units through operation plans and orders.

### Senior Year (Mil S IV)

#### Mil S 441 Leadership, Management, and Ethics for the Junior Military Officer

Fall. 2 credits. Required. J. M. Keefe. An overview of the functions, responsibilities, and interrelationships among small-unit leaders, the commander, and the staff. Detailed discussions focus on actions of small-unit leaders, communication skills, army operations, the logistical support of the army in the field, and the army training system. The course focuses on the dynamics of leadership in battle through the detailed analysis of a series of case studies. Just war theory, ethics, and professionalism are also addressed in a seminar-type environment.

#### Mil S 442 Contemporary Military Environment

Spring. 2 credits. Required. J. M. Keefe. A continuation of Mil S 441. Conferences and seminars examine the techniques of effective military leadership with special attention given to professionalism and ethical considerations in the armed forces during both peacetime and armed conflict. Army operations and basic doctrine are also discussed. This is a capstone course designed to prepare the student for commissioning.

## Practical Leadership Training

### All Army Officer-Education Students

As with many laboratory periods, no credit is given, and participation is required for successful completion of the AROTC program. Students receive physical education credit for the laboratory. Each semester, cadets register for the appropriate leadership laboratory, consisting of physical fitness training three times per week, two hours of military training each week, and one or two weekend training exercises per semester.

#### Mil S I Leadership Laboratory I

Fall.	Spring.
0 credits. S-U.	0 credits. S-U.
Mil S 151	Mil S 152

Mil S I cadets meet for two hours each week to learn a variety of military skills including rappelling, first aid, drill and ceremonies, weapons familiarization, and physical fitness training.

#### Mil S II Leadership Laboratory II

Fall.	Spring.
0 credits. S-U.	0 credits. S-U.
Mil S 251	Mil S 252

Cadets meet for two hours each week as members of the cadet organization to participate in practical leadership exercises. Types of practical activities include rifle

marksmanship, orienteering, drill and ceremonies, signal communications, physical fitness training, first aid, tactics, and field exercises.

#### **Mil S III Leadership Laboratory III**

Fall. 0 credits.	Spring. 0 credits.
Required. S-U.	Required. S-U.
Mil S 351	Mil S 352

Cadets meet for two hours a week and some weekends to prepare for a five-week summer camp that follows their junior year. Emphasis is on the development of individual practical and leadership technique skills. Cadets rotate through leadership positions to develop an ability to apply decision-making processes to a myriad of situations. Cadets also acquire technical expertise and proficiency in signal communications, physical fitness, drill and ceremonies, rappelling, orienteering, tactics, water survival, and other military skills.

#### **Mil S IV Leadership Laboratory IV**

Fall. 0 credits.	Spring. 0 credits.
S-U. Required.	Required. S-U.
Mil S 451	Mil S 452

Senior cadets plan and operate the leadership laboratory programs for Mil S I-III cadets. The development of planning and supervisory skills is emphasized. Cadets have an opportunity to practice leadership skills developed during previous ROTC training and summer camp experiences. Includes two to three hours a week devoted to physical fitness.

#### **Professional Military Education (PME) Requirements**

In addition to the ROTC classes and leadership laboratories listed above, a number of courses are required as part of the contracted student's academic program. These courses are offered by the university and round out the student's professional education. The PME component of the ROTC program requires at least one college course in each of the following areas: communication skills, military history, and an introduction to computers. These courses must be completed prior to graduation and commissioning. Courses that meet these requirements are approved by the Professor of Military Science.

## **NAVAL SCIENCE**

Captain J. Alley, United States Navy, Professor of Naval Science and Commanding Officer, Naval ROTC Unit

Lieutenant Colonel R. Minor, United States Marine Corps

Lieutenant J. Cleary, United States Navy

Lieutenant J. Lankford, United States Navy

Lieutenant J. Biondi, United States Navy

The objective of the Naval Officer Education Program is to prepare selected students for service as commissioned officers in the United States Navy or United States Marine Corps by supplementing their undergraduate education with instruction in essential concepts of naval science and fostering development of leadership, integrity, and dedication to their country and the naval services. The program is compatible with most undergraduate major fields of study, including five-year baccalaureate degree programs on a case-by-case basis.

The objective is achieved through a broad program, normally covering four years, that

combines specific courses in naval science and specified academic subjects. These courses supplement weekly professional development sessions in which the practical aspects of naval science and leadership procedures are stressed. It also includes at least one summer-at-sea period.

Non-naval officer education students: Though the Navy-Marine Corps Program has been designed to prepare future officers, naval science courses are open to all students at Cornell as space limitations allow.

### **Requirements for Enrollment**

An applicant for the Naval ROTC program at Cornell must be a citizen of the United States. Applicants must have reached their seventeenth birthday by June 30 of the entering year and be less than 27 years of age on June 30 of the calendar year in which they are commissioned. Waivers of the upper age limit may be available for applicants who have prior active duty military service. Applicants must also meet physical and medical requirements. Interested students can visit the Naval ROTC Unit in Barton Hall or contact their local recruiter.

### **Programs**

There are two programs: the Scholarship Program and the College Program. They differ primarily in benefits to the student.

### **Scholarship Program**

The Scholarship Program provides approximately 1,000 scholarships in more than 60 universities nationwide to selected students who want to serve in the Navy or Marine Corps. Financial support is provided to students during college preceding the award of the baccalaureate degree.

#### **Benefits**

The program offers scholarships that provide full tuition and are not need-based. While on scholarship, students also receive money for instructional fees, textbooks, nonconsumable supplies, and a \$200-a-month stipend for a maximum of 40 months.

Successful completion of the Scholarship Program leads to a commission in the Navy or Marine Corps Reserve. At Cornell University, over 90 percent of NROTC students have a scholarship. Students entering NROTC without a prior scholarship award are entitled to compete for two- or three-year scholarships controlled by the Chief of Naval Education and Training.

### **Entering the Scholarship Program**

There are three ways to enter the Scholarship Program:

First, by applying to the national competition each year. This process entails filling out and submitting an appropriate application; being interviewed; having a physical examination; and applying to, and being accepted by, one of the colleges or universities throughout the country that offers an NROTC program.

Second, by enrolling in the College Program at Cornell and being recommended by the Professor of Naval Science for a scholarship after at least one semester in the program.

Third, by entering through the Two-Year Scholarship Program.

## **College Program**

There are two College Programs available. Both lead to a commission in the Naval or Marine Corps Reserve.

Starting in the junior year, each of these programs provides textbooks for naval science courses, uniforms, and a subsistence allowance of \$200 a month.

The regular College Program is four years long. Academic requirements for students in this program are somewhat less than those for scholarship students, as noted in the curriculum section of this booklet.

The Two-Year College Program begins the summer before the junior year, when students attend a required program with pay at the Naval Science Institute in Newport, R.I.

## **Summer Training**

Each summer, students in the Scholarship Program spend approximately four to six weeks on a Navy ship or with a naval activity anywhere in the world for on-the-job training. College Program students attend one summer training session of the same duration between the junior and senior years.

## **Active Duty Requirements**

Scholarship midshipmen commissioned in the Navy or Marine Corps Reserve serve on active duty for a minimum of four years. College program midshipmen commissioned in the Naval or Marine Corps Reserve serve a minimum of three years. In some cases, following commissioning, specialized training such as aviation or nuclear power will add additional active duty requirements.

### **Choice of Assignment**

Graduates have an opportunity to request the duty they prefer upon graduation. These requests are given careful consideration, and every effort is made to assign newly commissioned officers their duty of choice.

Among the assignments available are duty in naval aviation as either a pilot or naval flight officer, on submarines, and on surface ships. Other specialties, such as special warfare or medical service corps, may be available on a limited basis.

## **Marine Corps Options**

The United States Marine Corps is an integral part of the Naval Services and is commanded by the Commandant of the Marine Corps. One-sixth of the NROTC scholarship students may be Marine selectees who will be designated Marine-option midshipmen. Upon successful completion of the program they will be appointed second lieutenants in the United States Marine Corps Reserve.

Marine-option midshipmen follow the same program as other NROTC midshipmen for the first two years. Beginning with the junior year, Marine-option midshipmen are taught Marine oriented courses by a Marine Officer Instructor. For first class summer training (after the junior year), Marine-option students travel to Quantico, Virginia, where they undergo six weeks of intensive training known as the USMC Officer Candidate School. Upon commissioning the following year as second lieutenants, they are assigned to the Basic School at Quantico, Virginia. After the Basic School, the Marine officer is assigned duty in a variety of occupational fields. Among the

duties available are infantry, aviation, artillery, tracked vehicles, engineering, communications, electronics, supply, administration, and computer science. The officer may serve on board naval vessels or at shore installations of the Marine Corps or Navy, either in this country or overseas.

The Marine Corps has a postgraduate training system similar in objectives and organization to that of the Navy. Marine officers selected for aviation receive flight training at the Naval Air Station, Pensacola, Florida, along with their Navy counterparts.

## Curriculum

A student has three categories of requirements to fulfill as a midshipman. The first of these requirements is a weekly naval professional development session each semester. The second requirement is a naval science course each semester. The last set of requirements consists of other required courses prescribed by the Navy to meet the growing need for more and better technically educated junior officers.

## Naval Professional Laboratories

### Nav S 141-142, 241-242, 341-342, or 441-442

All students in the program participate in one 90-minute professional development session each week. The session is held from 2:30 until 4:00 on Wednesday afternoons. This period consists of both drill and professional information briefings. Students gain experience in actual leadership situations and at the same time learn the fundamentals of seamanship, military formations, movements, commands, discipline, courtesies, and honors. During information briefings, special emphasis is given to applied leadership as it relates to the administrative and managerial aspects of a Navy or Marine Corps officer's duties.

## Naval Science Courses

All Navy and Marine midshipmen take one naval science course each semester during their freshman and sophomore years. Navy-option students continue to take a naval science course each semester during their junior and senior years. Marine-option students have slightly different curriculum requirements for their junior and senior years.

### Freshman Year (Navy and Marines)

#### Nav S 101 Fundamentals of Naval Science

Fall. No credit.

A study of fundamental aspects of naval science, including its contributions to sea power, factors, and different warfare communities involved in the physical development of naval forces, resources that must be managed, and prospects for the future. Naval uniforms, customs, and traditions are also covered.

#### Nav S 102 Sea Power and Maritime Affairs

Spring. 3 credits.

Discussions examine the history of the Navy as a force in diplomacy and an instrument of U.S. foreign policy. Relationships between Congress and the military for determining the national defense policy are also explored. An integrated examination of current events and issues gives a historical perspective throughout the course.

### Nav S 157 Principles of Sailing

Fall and spring. Physical education credit. Instruction in basic sailing skills and safety principles. Students sail small boats on Cayuga Lake. Focus is on U.S. Navy Class B inshore skipper certifications.

### Sophomore Year (Navy and Marines)

#### Nav S 201 Organizational Behavior and Small Group Processes

Fall. 3 credits.

The theme of the course is the "evolving role of the manager, organizational decision maker, and leader." The course will begin by briefly studying the theoretical principles of management and will progress through practical skills of managers and leaders. Lectures, reading assignments, films, and discussions should provide students with an excellent opportunity to wrestle with complex managerial and leadership issues. The goal of this course is for students to begin to develop a sound personal leadership philosophy that will enable them to more effectively accomplish assigned responsibilities leading men and women in today's demanding and increasing "hi-tech" naval environment.

#### Nav S 202 Naval Ship Systems I (also Mechanical and Aerospace Engineering 101)

Spring. 3 credits.

An introduction to primary ship-systems and their interrelationship. Basic principles of thermodynamics, propulsion, mechanical operation, internal communications, electronics, ship structure, and other marine systems.

### Junior Year (Navy)

#### Nav S 301 Principles of Navigation (also Agricultural Engineering 305)

Fall. 4 credits.

An introduction to the fundamentals of marine navigation emphasizing piloting and celestial navigation procedures. The course covers coordinate systems, chart projections, navigational aids, instruments, compass observations, time, star identification, use of the nautical almanac, tides and currents. Electronic navigation systems are discussed.

#### Nav S 302 Naval Operations

Spring. 3 credits.

The course covers the application of the nautical rules of the road and maneuvering board in order to avoid collisions at sea. Other aspects of naval surface ship operations that are introduced include visual and electronic communications methods, tactical disposition of forces, ship handling theory, and deck seamanship topics.

### Senior Year (Navy)

#### Nav S 401 Naval Ships Systems II (Weapons)

Fall. 3 credits.

The principles and theories used in the development of naval weapons systems are examined. Initially, extensive study is made of detection systems, especially radar and sonar, followed by discussions of ancillary systems for computing, stabilizing, tracking, and weapons control and delivery.

#### Nav S 402 Leadership and Ethics

Spring. 3 credits.

A variety of topics important to the naval officer for both professional and managerial development are reviewed. The material is tailored for the midshipman to provide an

understanding and appreciation of leadership and ethics in preparation for assignments in the naval service. Through the use of lectures, case studies, and role playing, the student will learn various aspects of Navy leadership and ethical decision making. Marine-option students may also take this course.

### Junior or Senior Year (Marine Options)

#### Nav S 310 Evolution of War

Spring. 3 credits.

A study of warfare that examines the relationship of military strategy to geography, economics, sociology, technology, and national political realities and values; the evolution of warfare, including principles of war, weapons, and associated equipment; and the effects of nuclear weapons and guerrilla warfare on traditional concepts of national strategy.

#### Nav S 410 History of Amphibious Warfare

Spring. 3 credits.

The history of the development, theory, techniques, and conduct of amphibious operations from 490 B.C. to the present. Special emphasis will be on amphibious operations conducted in the central Pacific during World War II and the future of amphibious operations.

## Other Required Courses

### Navy Option Scholarship Program

To be eligible for a commission in the United States Navy, midshipmen must successfully complete all the requirements for a baccalaureate degree in any field of study offered by Cornell University and complete courses in the following subjects (specified courses to be approved by the Professor of Naval Science):

American military affairs or national security policy (one semester)

English (one year)

calculus (one year)

calculus-based physics (one year)

computer science (one semester)

The calculus requirement must be satisfied by the end of the sophomore year and the physics requirement by the end of the junior year.

Although free choice of academic majors is permitted, students are encouraged to pursue majors in engineering and the physical sciences to meet the technological requirements of the modern Navy.

### Navy Option College Program

Navy-option College Program students must complete one year of college-level study in mathematics, physical science, and English as a prerequisite for commissioning. The mathematics course must be completed by the end of the junior year; the physical science course by the end of the senior year. In addition, one term of computer science is required. College Program students who desire entry into the Navy-option Scholarship Program should fulfill all of the requirements applicable to Navy-option scholarship students if they wish to be eligible and competitive for a scholarship controlled by the Chief of Naval Education and Training.



### Marine Option

Any midshipman, in either the Scholarship Program or the College Program, who completes all of Cornell University's degree requirements in any academic major, is eligible for a commission in the U.S. Marine Corps or U.S. Marine Corps Reserve. Marine-option students take the same naval science courses and naval professional laboratories as Navy-option students for the freshman and sophomore years. During the junior and senior years, Marine-option students have slightly different naval science course requirements than their Navy-option student counterparts. Two semesters of courses (a minimum of 3 hours each) in the subject area of American Military Affairs or National Security Policy are required. One semester of a modern foreign language must be completed.

### Extracurricular Activities

The NROTC midshipman at Cornell is offered a broad range of activities, including sail training and a comprehensive intramural sports program. Midshipmen participate in a myriad of social events, including the annual Navy/Marine Corps Birthday Ball.

## DEPARTMENT OF AEROSPACE STUDIES

Colonel James L. Wilson, Jr., United States Air Force, Professor of Aerospace Studies and Commander, Air Force ROTC Detachment 520

Captain Daniel P. McAlister, United States Air Force

Lieutenant Michael Mowry, United States Air Force

The objective of the Air Force Officer Education Program at Cornell is to prepare men and women for positions as officers in the United States Air Force. The program is designed to teach students about the mission and organization of the Air Force, the historical development of airpower, leadership, and management. Students study national security policy and the role of the military in a democratic society. This program includes specific courses in aerospace studies and practical leadership laboratories.

### Requirements for Enrollment

The Air Force Officer Education Program is open to any qualified undergraduate or graduate student enrolled in any major field of study. An applicant must be a United States citizen to become a commissioned officer. Noncitizens may enroll and will receive certificates acknowledging completion of the course but cannot receive a commission.

All applicants receive physical examinations at no cost and must meet certain physical requirements to be accepted. Students who are interested in qualifying for flying categories (pilot or navigator) must meet more stringent physical requirements. In addition, students enrolled in the commissioning program must meet specified physical fitness requirements.

Though the program is designed to prepare future Air Force officers, the Department of Aerospace Studies' academic courses are open to all students at Cornell.

### Four-Year Program

The Four-Year Program is open to all qualified freshmen. Sophomores may also enter a condensed version of the four-year program after coordination with the AFROTC staff. Students in a five-year program may enroll during their freshman, sophomore, or junior year.

Veterans of the U.S. armed forces and students entering Cornell from military schools may receive advanced standing, subject to approval by the Professor of Aerospace Studies.

The Four-Year Program consists of General Military Courses (GMC) and Professional Officer Courses (POC). For scholarship cadets, the first year of the GMC carries no military commitment, and students may withdraw at any time. For nonscholarship cadets, both years of the GMC carry no military commitment, and students may withdraw at any time.

### General Military Course

Students in General Military Courses (GMC) take a one-credit-hour Aerospace Studies course each semester. During the freshman year, the student examines the organization and mission of the United States Air Force and the environment of the Air Force officer. In the sophomore year, the student studies the history and development of American air power. In both years, officership and professionalism within the United States Air Force are emphasized.

Students also spend two hours a week in a leadership laboratory. Leadership laboratory provides cadets with the opportunity to put into practice the skills they learn in their aerospace studies classes. These laboratories focus on the development of officer qualities through such activities as drill and ceremonies, group leadership problems, confidence-building exercises, and guest lecturers. In addition, all students participate in summer field training for four weeks between their sophomore and junior years.

### Professional Officer Course

The Professional Officer Courses (POC) provide a two-year advanced program of instruction. Students who are accepted for the POC must have successfully completed or validated the basic course and must meet academic and physical standards. Each cadet accepted into the POC must sign an agreement to complete the program and accept, if offered, a commission in the United States Air Force upon graduation.

Classroom study in the POC is a three-credit-hour course each semester. In the junior year, cadets study Air Force leadership and management at the junior officer level. During the senior year, cadets study the elements of national security and the military's role in American society. Leadership laboratory requires two hours a week in the junior and senior years. In leadership laboratory, cadets are exposed to advanced leadership experiences and apply principles of leadership learned in the classroom.

### Two-Year Program

The Two-Year Program consists of the last two years (Professional Officer Courses) of the regular Four-Year Program plus a five-week summer training course preceding enrollment.

The Two-Year Program is open to all qualified students with two years of academic study remaining at Cornell (graduate or undergraduate) or at schools supported under a crosstown agreement. Applications are accepted from October through April of the academic year preceding the applicant's planned entry into the program. Selectees are then required to complete a five-week summer training program at government expense.

### Scholarships

The Air Force offers four-year scholarships to high school seniors and two- and three-year scholarships to college students. Four-year scholarships are offered on a competitive basis in specified majors to high school seniors. Scholarship information can be obtained from a high school guidance counselor, from Air Force ROTC officers at Cornell (AFROTC phone number is 607-255-4004), from a local Air Force recruiter, or from AFROTC/RROO, Maxwell AFB, AL 36112-6106, 334-953-2093, extension 2093. The deadline for submitting a four-year scholarship application is December 1 of the year preceding the academic year in which a student wants to enter the program. Students should apply early.

### Scholarships for two and three years.

Applications for these scholarships should be made to the Professor of Aerospace Studies during the freshman or sophomore years of college. All selections are based on the student's major, scores achieved on the Air Force Officer Qualifying Test, the student's overall grade point average, and the recommendation of the Professor of Aerospace Studies. Scholarships include amounts ranging from \$3,000 per year to full tuition, fees and books, and provide a \$200 monthly nontaxable allowance during the school year. Scholarships do not include the cost of room and board.

### Fees

An initial uniform deposit of \$50 is required on entry into AFROTC. Prior to commissioning, cadets may purchase uniforms with their deposit or return uniforms and receive their deposit back.

### Benefits

All cadets in the advanced program (POC)—whether they are on scholarship or not—receive a \$200-a-month, nontaxable subsistence allowance during the academic year. During the four- or five-week summer field training (see below), each cadet receives a pay allowance plus an allowance for travel to and from the field site. Textbooks and supplies required for Department of Aerospace Studies courses are provided.

All cadets are eligible to participate in AFROTC-sponsored field trips made to Air Force bases throughout the country as well as voluntary summer programs for professional development. Scholarship and advanced cadets (POC) are entitled to space-available travel on Air Force aircraft flying within the continental United States.

### Field Training

There are two types of field training: a four-week course for cadets in the Four-Year Program and a five-week course for Two-Year Program applicants. Students in these

programs normally attend field training between their sophomore and junior years.

Field training is designed to stimulate the development of military leadership skills through meaningful experiences. The curriculum consists of aircraft, aircrew, and survival orientation; junior officer training; physical training; small arms training; a social-actions program; and supplemental training. The five-week training program includes sixty hours of Air Force ROTC academic course work that substitutes for the freshman and sophomore Aerospace Studies courses.

Cadets may also volunteer for one of many Advanced Training Programs. These programs include the Professional Development Program, Air Force Academy Free-Fall Parachute Training, the British Royal Air Force (RAF) Exchange Program, Research and Development Experiences, the Academy Soaring Program, and Army Airborne Training.

### Commissioning Obligations

All students who successfully complete the AFROTC advanced program (POC) are awarded a baccalaureate degree, tendered a commission, and enter the Air Force as second lieutenants.

Second lieutenants commissioned in nonflying categories are required to serve on active duty for four years. Pilots are required to serve on active duty for ten years after completing flying training. Navigators serve six years after completing training.

### Air Force Careers

The Air Force assigns new officers to a career field based on mission requirements, educational background, and officers' preferences. Students in the engineering-scientific category may be assigned to practice in their specialty in research and development, communications, electronics, aeronautics, astronautics, the biological sciences, computer design and maintenance, meteorology, space, or other engineering and scientific fields. Graduates in the nontechnical category can anticipate assignments in manpower management, information management, logistics, law enforcement and investigation, intelligence, personnel, transportation, accounting and finance, and other career fields. They will be placed in positions of responsibility and be given the opportunity to further their development in leadership and management skills. Their specific educational expertise may be required.

Any undergraduate major is suitable for those who are qualified and interested in entering the space and missile career fields or becoming pilots, navigators, or air battle managers. After completion of flying training, personnel are assigned to a specific type of aircraft.

### Curriculum

Students in the Four-Year Program are required to take all courses listed below. Students in the Two-Year Program are required to take all of the courses listed for the junior and senior years. There are no prerequisites for any Aerospace Studies courses.

### Freshman Year

#### Air S 161 The Foundations of the United States Air Force I

Fall. 1 credit.

This is a survey course designed to introduce students to the United States Air Force and Air Force Reserve Officer Training Corps. Featured topics include: mission and organization of the Air Force, officership and professionalism, military customs and courtesies, Air Force officer opportunities, group leadership problems, and an introduction to communication skills. Leadership Laboratory is mandatory for AFROTC cadets and complements this course by providing cadets with followership experiences.

#### Air S 162 The Foundations of the United States Air Force II

Spring. 1 credit.

Continuation of Air S 161.

### Sophomore Year

#### Air S 211 The Evolution of USAF Air and Space Power I

Fall. 1 credit.

This course is designed to examine general aspects of air and space power through a historical perspective. Using this perspective, the course covers a time period from the first balloons and dirigibles to the role of air power in Bosnia-Herzegovina. Historical examples are provided to extrapolate the development of Air Force capabilities (competencies) and missions (functions) to demonstrate the evolution of what has become today's USAF air and space power. Furthermore, the course examines several fundamental truths associated with war in the third dimension: e.g., Principles of War and Tenets of Air and Space Power. As a whole, this course provides the students with a knowledge-level understanding of the general element and employment of air and space power from an institutional, doctrinal, and historical perspective. In addition, students will continue to discuss the importance of the Air Force Core Values by examining operational examples and historical Air Force leaders while continuing to develop their communication skills.

#### Air S 212 The Evolution of USAF Air and Space Power II

Spring. 1 credit.

Continuation of Air S 211.

### Junior Year

#### Air S 331 Air Force Leadership Studies I

Fall. 3 credits.

This course is a study of leadership, quality management fundamentals, professional knowledge, Air Force personnel and evaluation systems, leadership ethics, and communication skills required of an Air Force junior officer. Case studies are used to examine Air Force leadership and management situations as a means of demonstrating and exercising practical application of the concepts being studied. A mandatory Leadership Laboratory complements this course by providing advanced leadership experiences in officer-type activities, giving students the opportunity to apply leadership and management principles of this course.

#### Air S 332 Air Force Leadership Studies II

Spring. 3 credits.

Continuation of Air S 331.

### Senior Year

#### Air S 401 National Security Affairs/Preparation for Active Duty I

Fall. 3 credits.

This course examines the national security process, regional studies, advanced leadership ethics, and Air Force doctrine. Special topics of interest focus on the military as a profession, officership, military justice, civilian control of the military, preparation for active duty, and current issues affecting military professionalism. Within this structure, continued emphasis is given to refining communication skills. A mandatory Leadership Laboratory complements this course by providing advanced leadership experiences, giving students the opportunity to apply the leadership and management principles of this course.

#### AS 402 National Security Affairs/Preparation for Active Duty II

Spring. 3 credits.

Continuation of Air S 401.

### Leadership Laboratory Courses

All Air Force cadets spend two hours a week throughout the academic year in a leadership laboratory, for which no academic credit is given. Occasionally laboratories are held at times other than the normally scheduled period. All cadets are expected to participate in an evening formal dinner and to meet minimum physical fitness and weight standards each semester. Leadership lab is open to students qualified to compete for an Air Force commission.

#### Air S 141-142 Initial Military Experiences

Introduction to the responsibilities, life, and work of an Air Force officer. Basic knowledge of drill and ceremonies, military courtesies, and the wearing of the uniform. Field trip to a local military installation.

#### Air S 241-242 Intermediate Military Experiences

Develops skills in giving commands for drill and ceremonies. Introduction to the Air Force base environment in which the Air Force officer functions. Includes a look at career areas available based on academic majors. Students participate in leadership situations through military drills and ceremonies. Field trip to a local military installation.

#### Air S 341-342 Junior Officer Leadership

Cadets assume leadership responsibilities similar to those of a junior officer. Emphasis is on the importance of applying effective human relations skills in dealing with superiors, peers, and subordinates. Cadets also gain insight into the general structure and progression patterns common to selected Air Force officer career fields.

#### Air S 441 Advanced Leadership Experiences

Cadets assume command leadership responsibilities to operate a military organization. Cadets apply effective leadership and managerial techniques with individuals and groups and participate in self-analysis of leadership and managerial abilities.

#### Air S 442 Precommissioning Laboratory

Factors that facilitate transition from civilian to military life are reviewed. The need for military security, base services and activities, personal finances, travel regulations, and social obligations are introduced.