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# East College

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Glenn W. Irvin, PhD, Dean

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## PURPOSE

East College offers a variety of liberal studies and professional programs. Baccalaureate programs are offered in applied biological sciences, applied psychology, business administration, education, exercise and wellness, human health studies, interdisciplinary studies, multimedia writing and technical communication, and nutrition. Minors, certificates, and graduate programs are available in some areas.

East College provides advising for students who wish to begin their college careers at the Polytechnic campus but who are uncertain about a major. Exploratory/undeclared majors can complete portions of the General Studies requirement while taking advantage of the small, polytechnic-focused, residential campus environment.

East College offers a selection of ASU General Studies and general interest courses. The Humanities and Arts unit offers a selection of courses in art, communication, dance, English, history, music, philosophy, religious studies, and Spanish. The Social and Behavioral Sciences unit offers courses in anthropology, family and human development, political science, sociology, and women's studies. Mathematics and science courses are available through the Department of Applied Biological Sciences. Students should refer to the *Schedule of Classes* for specific courses offered each semester.

East College also offers statistics courses (APM) to meet requirements for a range of majors and support courses for the Bachelor of Applied Science (BAS) degree. The applied science core (ASC) courses are upper division and designed to build upon the mathematics and science base acquired in the Associate of Applied Science (AAS) degree.

**Partnership in Baccalaureate Education.** The Partnership in Baccalaureate Education, an agreement between Chandler-Gilbert Community College and Polytechnic campus, is coordinated through East College. Through this part-

nership, students take first-year composition courses and courses that meet lower-division ASU General Studies requirements. They are listed in "General Studies," page 93. These courses, combined with introductory courses within the major, are available in an innovative and integrated first-year curriculum designed to foster academic success. Students can also take major prerequisite courses, introductory language courses, and other lower-division courses of general interest through the partnership. These courses automatically transfer to ASU each semester.

## DEGREE PROGRAMS

See the "East College Baccalaureate Degrees and Majors" table, page 215. For graduate degrees, see the "East College Graduate Degrees and Majors" table, page 216.

East College also offers certificate programs in Multimedia Writing and Technical Communication and in Spa Management; minors in Applied Biological Sciences, Applied Psychology, Food and Nutrition Management, Human Nutrition, Small Business, and Wellness Foundations; and concentrations for the BAS. See the *Graduate Catalog* for more information about graduate programs.

## INTERDISCIPLINARY STUDIES—BIS

The Bachelor of Interdisciplinary Studies (BIS) program is intended for the student who has academic interests that might not be satisfied with existing majors. Building on academic concentrations and an interdisciplinary core, students in the BIS program take an active role in creating their educational plans and defining their career goals. The BIS program emphasizes written communication, versatility, and critical thinking, skills desired in the 21st-century workplace. Self-assessment and appraisal of opportunities to support academic and career goals are key elements in the core courses. The concentrations are generally based on approved academic minors, certificate programs, or special coherent clusters of course work. The student should be able to integrate these into a meaningful program.

The combination of areas of concentration gives students flexibility in creating unique programs to accomplish individual academic goals. Students who declare the BIS as their major in East College at Polytechnic campus take their core courses and at least one concentration through Polytechnic campus. The second concentration may be taken at the Polytechnic or Tempe campus. The BIS core courses are offered by East College. Concentrations at Polytechnic campus are offered by East College, the College of Technology and Applied Sciences, and the Morrison School of Agribusiness and Resource Management. Students interested in the BIS program should arrange an appointment

East College Baccalaureate Degrees and Majors

Major	Degree	Concentration*	Administered By
Applied Biological Sciences	BS	Applied biological sciences, applied biological sciences/secondary education, urban horticulture, or wildlife and restoration ecology	Department of Applied Biological Sciences
Applied Psychology	BS	—	East College
Applied Science	BAS	Food service management, multimedia writing and technical communication, or wellness	East College
Business Administration	BS	—	East College
Elementary Education	BAE	—	East College
Exercise and Wellness	BS	Exercise and wellness or health promotion	Department of Exercise and Wellness
Human Health Studies	BA, BS	—	East College
Interdisciplinary Studies	BIS	See the “BIS Concentrations” table, page 142.	Bachelor of Interdisciplinary Studies Advisory Committee
Multimedia Writing and Technical Communication	BS	—	East College
Nursing	BSN	—	College of Nursing (Downtown Phoenix campus)
Nutrition	BS	Dietetics, food and nutrition management, human nutrition, or nutrition communication	Department of Nutrition
Real Estate	BS	—	East College
Secondary Education	BAE	Academic specialization: physical education	East College

\* If a major offers concentrations, one must be selected unless noted as *optional*.

with a University College advisor at 480/727-1452 before declaring the BIS major.

**Basic Requirements**

The BIS major requires 120 semester hours. The major is composed of a 12 hour core and a minimum of 36 hours in two or three concentration areas (18 hours or more each). Throughout the core sequence, the student assembles a portfolio, including self-assessment of progress toward career goals and an evaluation of key educational and personal activities that may apply. The core courses must be taken in sequence. These courses may not be transferred from other institutions. BIS 401 may be taken as a corequisite or prerequisite for BIS 402. All core courses must be completed with a grade of “C” (2.00) or higher.

**Core Courses**

BIS 301 Foundations of Interdisciplinary Studies L.....	3
BIS 302 Interdisciplinary Inquiry .....	3
BIS 401 Applied Interdisciplinary Studies .....	3
BIS 402 Senior Seminar L.....	3
Total .....	12

For course descriptions, see “School of Interdisciplinary Studies,” page 139.

**Other Requirements**

In addition to the basic requirements, students must complete all university requirements, including First-Year Composition and General Studies. Early advising is recom-

mended to ensure that students meet requirements efficiently and optimize their choices.

**Declaring the BIS Major**

Students must receive approval from an East College advisor before declaring the BIS major. In addition, the student must

1. complete at least 45 semester hours of university credit;
2. earn a cumulative GPA of at least 2.00;
3. complete two courses in each concentration with a minimum grade of “C” (2.00) before enrolling in BIS 301; and
4. complete the university mathematics and First-Year Composition requirements.

All incoming students and continuing students with a minimum GPA of 2.00 who do not meet the above requirements are placed in a pre-BIS major until the requirements have been met.

**APPROVED CONCENTRATIONS**

Each concentration requires 18 or more semester hours, with each course completed with a grade of “C” (2.00) or

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

## East College Graduate Degrees and Majors

Major	Degree	Concentration <sup>1</sup>	Administered By
Applied Biological Sciences	MS	GIS/remote sensing, natural resource management, or range ecology	Department of Applied Biological Sciences
Applied Psychology	MS	—	Faculty of Applied Psychology
Curriculum and Instruction	MEd	English as a second language, instructional media in K–12 schools, or professional studies	Faculty of Education
	PhD <sup>2</sup>	Exercise and wellness education, physical education	Division of Curriculum and Instruction (Tempe campus)
Environmental Design and Planning <sup>2</sup>	PhD	Design; history, theory, and criticism; or planning	Committee on Environmental Design and Planning
Exercise and Wellness	MS	—	Department of Exercise and Wellness
Nutrition	MS	—	Department of Nutrition
Physical Activity, Nutrition, and Wellness	PhD	—	Department of Exercise and Wellness and Department of Nutrition
Physical Education	MPE	—	Faculty of Education
Plant Biology <sup>2</sup>	PhD	—	School of Life Sciences (Tempe campus)

<sup>1</sup> If a major offers concentrations, one must be selected unless noted as *optional*.

<sup>2</sup> Doctoral courses for this interdisciplinary program administered by the Tempe campus are offered at the Polytechnic campus.

higher. Twelve or more of the semester hours must be in upper-division courses. Students should check for new information about concentrations on the Web at [www.poly.asu.edu/ecollege](http://www.poly.asu.edu/ecollege) or contact an East College advisor at 480/727-1333.

## ANTHROPOLOGY (ANT)

**E ANT 194 Special Topics. (1–4)**  
*selected semesters*

**E ANT 294 Special Topics. (1–4)**  
*selected semesters*

**E ANT 394 Special Topics. (1–4)**  
*selected semesters*

**E ANT 484 Internship. (1–12)**  
*selected semesters*

**E ANT 494 Special Topics. (1–4)**  
*selected semesters*

**E ANT 498 Pro-Seminar. (1–7)**  
*selected semesters*

**E ANT 499 Individualized Instruction. (1–3)**  
*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see “Omnibus Courses,” page 63.

## APPLIED MATHEMATICS (APM)

**E APM 301 Introductory Statistics. (3)**  
*selected semesters*

Probability, distributions, statistical hypothesis testing, t-tests, basic correlation, and regression. Prerequisite: MAT 117 or instructor approval.

*General Studies: CS*

**E APM 401 Intermediate Statistics. (3)**  
*selected semesters*

Analysis of variance, multiple comparisons, multiple regression. Prerequisite: APM 301 (or its equivalent) or instructor approval.

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see “Omnibus Courses,” page 63.

## ART (ARD)

**E ARD 194 Special Topics. (1–4)**  
*selected semesters*

**E ARD 294 Special Topics. (1–4)**  
*selected semesters*

**E ARD 394 Special Topics. (1–4)**  
*selected semesters*

**E ARD 484 Internship. (1–12)**  
*selected semesters*

**E ARD 494 Special Topics. (1–4)**  
*selected semesters*

**E ARD 498 Pro-Seminar. (1–7)**  
*selected semesters*

**E ARD 499 Individualized Instruction. (1–3)**  
*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see “Omnibus Courses,” page 63.

## APPLIED SCIENCE CORE (ASC)

**E ASC 301 Contextual Uses of Algebra in Technology. (1)**  
*fall and spring*

Uses algebra to solve real-world technological problems using currently available computer software. Prerequisite: BAS major.

**E ASC 302 Contextual Uses of Geometry in Technology. (1)**  
*fall and spring*

Uses geometrical concepts to solve real-world technological problems using currently available computer software. Prerequisite: BAS major.

**E ASC 303 Contextual Uses of Trigonometry in Technology. (1)**  
*fall and spring*

Uses trigonometry to solve real-world technological problems using currently available computer software. Prerequisite: BAS major.

**E ASC 315 Numeracy in Technology. (3)**  
*fall and spring*

Contextual uses of mathematics in applied sciences. Emphasizes using mathematical methodologies to solve technology-related problems. Prerequisite: BAS major.

*General Studies: MA*

**E ASC 325 Physical Sciences in Technology. (4)***fall and spring*

Physical systems and their interrelationships on technology systems. Real-world applications of physical systems. Lecture, lab. Prerequisite: BAS major.  
*General Studies: SQ*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**COMMUNICATION (CMA)****E CMA 194 Special Topics. (1–4)***selected semesters***E CMA 294 Special Topics. (1–4)***selected semesters***E CMA 394 Special Topics. (1–4)***selected semesters***E CMA 484 Internship. (1–12)***selected semesters***E CMA 494 Special Topics. (1–4)***selected semesters***E CMA 498 Pro-Seminar. (1–7)***selected semesters***E CMA 499 Individualized Instruction. (1–3)***selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**DANCE (DNC)****E DNC 194 Special Topics. (1–4)***selected semesters***E DNC 294 Special Topics. (1–4)***selected semesters***E DNC 394 Special Topics. (1–4)***selected semesters***E DNC 484 Internship. (1–12)***selected semesters***E DNC 494 Special Topics. (1–4)***selected semesters***E DNC 498 Pro-Seminar. (1–7)***selected semesters***E DNC 499 Individualized Instruction. (1–3)***selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**ENGLISH/HUMANITIES (ENH)****E ENH 194 Special Topics. (1–4)***selected semesters***E ENH 294 Special Topics. (1–4)***selected semesters***E ENH 394 Special Topics. (1–4)***selected semesters***E ENH 484 Internship. (1–12)***selected semesters***E ENH 494 Special Topics. (1–4)***selected semesters***E ENH 498 Pro-Seminar. (1–7)***selected semesters***E ENH 499 Individualized Instruction. (1–3)***selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**FAMILY AND HUMAN DEVELOPMENT (FAM)****E FAM 194 Special Topics. (1–4)***selected semesters***E FAM 294 Special Topics. (1–4)***selected semesters***E FAM 394 Special Topics. (1–4)***selected semesters***E FAM 484 Internship. (1–12)***selected semesters***E FAM 494 Special Topics. (1–4)***selected semesters***E FAM 498 Pro-Seminar. (1–7)***selected semesters***E FAM 499 Individualized Instruction. (1–3)***selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**HISTORY (HTY)****E HTY 194 Special Topics. (1–4)***selected semesters***E HTY 294 Special Topics. (1–4)***selected semesters***E HTY 394 Special Topics. (1–4)***selected semesters***E HTY 484 Internship. (1–12)***selected semesters***E HTY 494 Special Topics. (1–4)***selected semesters***E HTY 498 Pro-Seminar. (1–7)***selected semesters***E HTY 499 Individualized Instruction. (1–3)***selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**MASS COMMUNICATION (MCN)****E MCN 194 Special Topics. (1–4)***selected semesters***E MCN 294 Special Topics. (1–4)***selected semesters***E MCN 394 Special Topics. (1–4)***selected semesters***E MCN 484 Internship. (1–12)***selected semesters***E MCN 494 Special Topics. (1–4)***selected semesters***E MCN 498 Pro-Seminar. (1–7)***selected semesters***E MCN 499 Individualized Instruction. (1–3)***selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**MUSIC (MSC)****E MSC 194 Special Topics. (1–4)***selected semesters***E MSC 294 Special Topics. (1–4)***selected semesters***E MSC 394 Special Topics. (1–4)***selected semesters***E MSC 484 Internship. (1–12)***selected semesters***E MSC 494 Special Topics. (1–4)***selected semesters*

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

## EAST COLLEGE

### **E MSC 498 Pro-Seminar. (1-7)**

*selected semesters*

### **E MSC 499 Individualized Instruction. (1-3)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

## **PHILOSOPHY (PHL)**

### **E PHL 194 Special Topics. (1-4)**

*selected semesters*

### **E PHL 294 Special Topics. (1-4)**

*selected semesters*

### **E PHL 394 Special Topics. (1-4)**

*selected semesters*

### **E PHL 484 Internship. (1-12)**

*selected semesters*

### **E PHL 494 Special Topics. (1-4)**

*selected semesters*

### **E PHL 498 Pro-Seminar. (1-7)**

*selected semesters*

### **E PHL 499 Individualized Instruction. (1-3)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

## **POLITICAL SCIENCE (PLS)**

### **E PLS 194 Special Topics. (1-4)**

*selected semesters*

### **E PLS 294 Special Topics. (1-4)**

*selected semesters*

### **E PLS 394 Special Topics. (1-4)**

*selected semesters*

### **E PLS 484 Internship. (1-12)**

*selected semesters*

### **E PLS 494 Special Topics. (1-4)**

*selected semesters*

### **E PLS 498 Pro-Seminar. (1-7)**

*selected semesters*

### **E PLS 499 Individualized Instruction. (1-3)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

## **SOCIOLOGY (SCL)**

### **E SCL 194 Special Topics. (1-4)**

*selected semesters*

### **E SCL 294 Special Topics. (1-4)**

*selected semesters*

### **E SCL 394 Special Topics. (1-4)**

*selected semesters*

### **E SCL 484 Internship. (1-12)**

*selected semesters*

### **E SCL 494 Special Topics. (1-4)**

*selected semesters*

### **E SCL 498 Pro-Seminar. (1-7)**

*selected semesters*

### **E SCL 499 Individualized Instruction. (1-3)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

## **SPANISH (SPN)**

### **E SPN 194 Special Topics. (1-4)**

*selected semesters*

### **E SPN 294 Special Topics. (1-4)**

*selected semesters*

### **E SPN 394 Special Topics. (1-4)**

*selected semesters*

### **E SPN 484 Internship. (1-12)**

*selected semesters*

### **E SPN 494 Special Topics. (1-4)**

*selected semesters*

### **E SPN 498 Pro-Seminar. (1-7)**

*selected semesters*

### **E SPN 499 Individualized Instruction. (1-3)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

## **THEATRE (THR)**

### **E THR 194 Special Topics. (1-4)**

*selected semesters*

### **E THR 294 Special Topics. (1-4)**

*selected semesters*

### **E THR 394 Special Topics. (1-4)**

*selected semesters*

### **E THR 484 Internship. (1-12)**

*selected semesters*

### **E THR 494 Special Topics. (1-4)**

*selected semesters*

### **E THR 498 Pro-Seminar. (1-7)**

*selected semesters*

### **E THR 499 Individualized Instruction. (1-3)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

## **WOMEN'S STUDIES (WNS)**

### **E WNS 194 Special Topics. (1-4)**

*selected semesters*

### **E WNS 294 Special Topics. (1-4)**

*selected semesters*

### **E WNS 394 Special Topics. (1-4)**

*selected semesters*

### **E WNS 484 Internship. (1-12)**

*selected semesters*

### **E WNS 494 Special Topics. (1-4)**

*selected semesters*

### **E WNS 498 Pro-Seminar. (1-7)**

*selected semesters*

### **E WNS 499 Individualized Instruction. (1-3)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

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## Department of Applied Biological Sciences

[www.poly.asu.edu/ecollege/appliedbiologicalsciences](http://www.poly.asu.edu/ecollege/appliedbiologicalsciences)

480/727-1444

WANER Third Floor

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**Ward W. Brady, Chair**

**Professors:** Brady, Brock, Mushkatel, Sommerfeld, Stutz

**Associate Professors:** Green, Martin, Miller, Steele, Whysong

**Assistant Professors:** Hu, Marcum

**Lecturer:** Huffman

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### APPLIED BIOLOGICAL SCIENCES—BS

The Department of Applied Biological Sciences offers rigorous and practical programs in applications of the biological sciences. Consistent with a polytechnic vision, programs involve extensive student interaction with faculty through experience-based learning activities, including laboratories, field trips, internships, and faculty-guided research and service-learning projects. Mastery of fundamental biological principles is emphasized through quality learning in the classroom and hands-on activities in laboratories and in the living laboratories of the Sonoran desert and surrounding ecosystems.

Graduates can pursue entry-level careers in wildlife and restoration ecology, urban horticulture, and secondary education. The general program in Applied Biological Sciences also prepares graduates to succeed in graduate and professional schools in disciplines such as animal health, environmental biotechnology, medicine, dentistry, physical therapy, ecology, horticulture, and wildlife biology.

#### Mission

The mission of the department is to provide excellence by way of

1. academic programs that are rigorous and experience-based and involve extensive student-faculty interaction;
2. research, scholarship, and practice that advance knowledge, address practical problems, and explore emerging opportunities; and
3. service and outreach to the local and global communities.

#### Goal

The goal of the department's academic programs is to prepare practitioners, managers, and research scholars in fields related to the applied biological sciences who

1. are problem solvers, comfortable with interdisciplinary work and aware that many breakthroughs occur

where fields overlap and multiple disciplines work together;

2. are technically proficient whether they work in the field or at the laboratory bench, understand why and how equipment and procedures work, and are capable of designing new protocols and techniques to meet new challenges;
3. constantly stay abreast of scientific advances, actively reading broadly and deeply, understanding not only the critical nature of the primary literature in their chosen field, but also the importance of keeping step with emerging data and technology and incorporating new ideas and technologies into their discipline;
4. understand ethical and policy implications of their work and are capable of debating science in a context beyond the technical details of their discipline;
5. are articulate in oral and written communication, forming cogent arguments and communicating them clearly; and
6. understand that groundbreaking science requires knowledge and creativity and that creativity is central to discovery.

For the latest information about program requirements and courses, access the Web site at [www.asu.edu/ecollege/appliedbiologicalsciences](http://www.asu.edu/ecollege/appliedbiologicalsciences), or call 480/727-1444.

#### Graduation Requirements

A total of 120 semester hours, with a minimum of 45 semester hours of upper-division credit, is required for graduation. As part of the undergraduate degree program, students complete the ASU General Studies requirement. For courses that meet ASU General Studies requirement, see "General Studies," page 93. It is strongly recommended that students work with an East College academic advisor when selecting courses to meet the General Studies requirement since otherwise required courses can often be used to meet the General Studies requirement.

**Applied Biological Sciences Core.** All Applied Biological Sciences students are required to complete the following courses:

#### Applied Biological Sciences Core

ABS 300 Environmental Biology .....	3
ABS 302 Ethical and Policy Issues in Biology .....	2
ABS 350 Applied Statistics <i>CS</i> .....	3
BIO 187 General Biology I <i>SG</i> .....	4
BIO 188 General Biology II <i>SQ</i> .....	4
BIO 340 General Genetics.....	4
BIO 360 Animal Physiology.....	3
or PLB 308 Plant Physiology (4)	
or ABS 311 Applied Cellular Biology (3)	
CHM 113 General Chemistry I <i>SQ</i> .....	4
MAT 210 Brief Calculus <i>MA</i> .....	3
Total .....	30–31

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**L** literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

## EAST COLLEGE

Students majoring in Applied Biological Sciences must select one of the concentrations listed below.

### Applied Biological Sciences Concentration

This concentration offers students the opportunity to acquire a rigorous education in the biological and related sciences while providing flexibility to meet specific student interests. Students who plan to pursue research careers and postgraduate studies in biology, environmental biotechnology, and ecology may find this concentration appropriate. In addition, the concentration is designed for students planning to enter the health professions, including animal health, medicine, medical technology, epidemiology, dentistry, physical therapy, public health, and physician's assistant programs.

Students planning to enter professional programs need to include two semester sequences in physics and organic chemistry in their programs of study. BCH 361 Principles of Biochemistry is also suggested.

#### Applied Biological Sciences Concentration

ABS 355 Vertebrate Zoology.....	4
ABS 370 Ecology .....	3
ABS 490 Applied Biological Sciences Seminar.....	1
CHM 116 General Chemistry <i>SQ</i> .....	4
Choose between the organic chemistry course combinations below..... 4 or 8	
CHM 231 Elementary Organic Chemistry <i>SQ</i> <sup>1</sup> (3)	
CHM 235 Elementary Organic Chemistry Lab <i>SQ</i> <sup>1</sup> (1)	
— or —	
CHM 233 General Organic Chemistry I (3)	
CHM 234 General Organic Chemistry II (3)	
CHM 237 General Organic Chemistry Laboratory I (1)	
CHM 238 General Organic Chemistry Laboratory II (1)	
Choose between the physics course combinations below..... 4 or 8	
PHY 101 Introduction to Physics <i>SQ</i> (4)	
— or —	
PHY 111 General Physics <i>SQ</i> <sup>2</sup> (3)	
PHY 112 General Physics <i>SQ</i> <sup>3</sup> (3)	
PHY 113 General Physics Laboratory <i>SQ</i> <sup>2</sup> (1)	
PHY 114 General Physics Laboratory <i>SQ</i> <sup>3</sup> (1)	
Approved electives in Applied Biological Sciences .....	12
Total .....	32–40

<sup>1</sup> Both CHM 231 and 235 must be taken to secure *SQ* credit.

<sup>2</sup> Both PHY 111 and 113 must be taken to secure *SQ* credit.

<sup>3</sup> Both PHY 112 and 114 must be taken to secure *SQ* credit.

### Applied Biological Sciences/Secondary Education Concentration

The applied biological sciences/secondary education concentration qualifies students for the State of Arizona Certification in Secondary Biology Education. Students interested in pursuing this concentration need to complete the science content courses related to biology and the courses specific to the secondary education curriculum. The program concludes with full-time student teaching in a secondary science classroom. Students interested in pursuing the concentration need to be admitted into the Teacher Education unit before taking the secondary methods courses (approximately during the junior year). See “Applied Biological Sciences—BS Secondary Education Concentration,” page 229, for application requirements.

### Secondary Education Concentration General Studies

**Requirement.** For students choosing the secondary education concentration, the following courses must be used as General Studies courses in order to graduate in 120 hours:

ABS 350 Applied Statistics or equivalent <i>CS</i> .....	3
BIO 187 General Biology I <i>SG</i> .....	4
BIO 188 General Biology II <i>SQ</i> .....	4
MAT 210 Brief Calculus <i>MA</i> .....	3

#### Applied Biological Sciences/Secondary Education Concentration

ABS 355 Vertebrate Zoology.....	4
or ABS 207 Applied Plant Taxonomy (3)	
ABS 370 Ecology .....	3
ABS 490 Applied Biological Sciences Seminar.....	1
CHM 116 General Chemistry <i>SQ</i> .....	4
MIC 205 Microbiology <i>SG</i> *.....	3
MIC 206 Microbiology Laboratory <i>SG</i> *.....	1
PHY 101 Introduction to Physics <i>SQ</i> .....	4
Upper-division electives.....	3
Total .....	22–23

\* Both MIC 205 and 206 must be taken to secure *SG* credit.

#### Secondary Education Curricula

BIO 480 Methods of Teaching Biology.....	3
BIO 482 Advanced Methods of Teaching Biology.....	3
EDC 350 Educational Technology I: Applications.....	1
EDC 351 Educational Technology II: Instruction and Evaluation .....	1
EDC 352 Educational Technology III: Design .....	1
EDC 494 ST: Professional Knowledge.....	2
EDP 303 Human Development <i>L/SB</i> .....	3
EDP 310 Educational Psychology <i>SB</i> .....	3
RDG 301 Literacy and Instruction in the Content Areas .....	3
SED 403 Middle and Secondary School Principles, Curricula, and Methods.....	3
SED 478 Student Teaching in Secondary Schools .....	10–12
SED 496 Field Experience .....	0
SPE 394 ST: Inclusion Practices at the Secondary Level.....	3
Total .....	36–38

#### Strongly Recommended

MCE 446 Understanding the Culturally Diverse Child <i>C</i> .....	3
SPE 311 Orientation to Education of Exceptional Children <i>SB, C</i> .....	3

### Urban Horticulture Concentration

Urban horticulture emphasizes the relationship of plants and people in city environments. Set in a unique southwestern desert location, Polytechnic campus's program strives to teach urban horticulture students how to practice principles and develop skills that help create aesthetically pleasing urban environments. This approach is coupled with an appreciation of environmental conservation and stewardship. To achieve this goal, the program specializes in teaching students about the unique aspects of desert horticulture. Through course offerings, students can gain expertise in a diverse array of topics such as landscape plant identification culture and use; creation of public and private gardens in arid climates; management practices of landscape planting and irrigation design; installation and maintenance; xeriscape and water conservation; integrated pest management; installation and management of golf, sports, and recreational turf grass; plant propagation and greenhouse/

nursery management. Graduates are qualified to identify and grow ornamental landscape trees, shrubs, ground covers, grasses, flowering potted plants, and bedding plants. They also design, install, and maintain outdoor and indoor landscape environments that enhance urban aesthetics.

**Urban Horticulture Concentration**

ABS 225 Soils SQ <sup>1</sup> .....	3
ABS 226 Soils Laboratory SQ <sup>1</sup> .....	1
ABS 260 Fundamentals of Urban Horticulture SG.....	4
ABS 362 Landscape Plants and Design.....	4
ABS 363 Landscape and Turf Irrigation.....	4
ABS 364 Urban Forestry.....	3
ABS 462 Greenhouse/Nursery Management.....	4
or ABS 463 Golf and Sports Turf Management (3)	
Choose one of the three courses below.....	3
ABS 465 Senior Enterprise Project (3)	
ABS 484 Internship (3)	
ABS 492 Honors Directed Study (3)	
CHM 231 Elementary Organic Chemistry SQ <sup>2</sup> .....	3
PLB 414 Plant Pathology L.....	3
or PGM 466 Integrated Pest Control (2)	
Approved upper-division electives.....	6
Total .....	36-38

<sup>1</sup> Both ABS 225 and 226 must be taken to secure SQ credit.  
<sup>2</sup> Both CHM 231 and 235 must be taken to secure SQ credit.

**Wildlife and Restoration Ecology**

Applied ecology is the focus of the wildlife and restoration ecology concentration. Introductory course work emphasizes a core understanding of biological science, principles of plant and animal ecology, and the techniques and principles of ecosystem management. Students can choose to focus their course work on wildlife ecology or restoration ecology.

The discipline of ecological restoration provides a scientific basis for the reconstruction of degraded ecosystems and focuses on practices designed to improve the ecological structure and function, and on meeting societal needs for sustainable and functional ecosystems. The restoration process includes identifying the causes of degradation, devising methods and goals for the restoration effort, developing management strategies for the restored sites, monitoring changes on the site and assessing restoration success. Restoration practices may include improving wildlife habitat, reintroducing missing plants or animals, removal of invasive species, rebuilding of soils, and returning natural processes such as fire and flooding to ecosystems that historically experienced these disturbance regimes. Successful restoration projects require community involvement and demand consideration of the economic and social context in which restoration is carried out

The wildlife ecology course work is distinguished by its strong emphasis on habitat management. While students are expected to master the material found in traditional wildlife biology curricula, students are also expected to develop a strong expertise in habitat management. This background in habitat management requires proficiency in the botanical sciences, including plant ecology and provides a synergistic link with the ecological restoration concentration. The applied nature of the concentration is emphasized by the requirement for mastery of the analytic technologies (rang-

ing from quantitative ecology and ecological modeling to the use of geographic information systems) as well as a comprehensive understanding of the economic and policy contexts in which wildlife habitat management occurs.

**Wildlife and Restoration Ecology Concentration General Studies Requirements.** For students choosing the wildlife and restoration ecology concentration, the following courses must be used as General Studies courses in order to graduate in 120 hours:

ABS 350 Applied Statistics or equivalent CS.....	3
ABS 480 Ecosystem Management and Planning L.....	3
BIO 187 General Biology I SG.....	4
BIO 188 General Biology II SQ.....	4
MAT 210 Brief Calculus MA.....	3

**Wildlife and Restoration Ecology Concentration**

ABS 207 Applied Plant Taxonomy.....	3
ABS 370 Ecology.....	3
ABS 374 Introduction to Wildlife Management.....	4
ABS 381 Natural Resources Policy.....	3
ABS 402 Vegetation and Wildlife Measurements.....	3
ABS 440 Ecological Restoration Techniques.....	3
ABS 480 Ecosystem Management and Planning L.....	3
ABS 485 GIS in Natural Resources.....	3
CHM 231 Elementary Organic Chemistry SQ <sup>1</sup> .....	3

Choose one of the following course groupings:

ABS 225 Soils SQ <sup>2</sup> .....	3
ABS 226 Soils Laboratory SQ <sup>2</sup> .....	1
ABS 433 Riparian and Wetland Ecology.....	3
ABS 441 Ecological Restoration Practicum.....	1
ABS 482 Ecology and Planning for Restoration.....	3
ABS 483 Restoration Planning Practicum.....	2
Approved supporting courses.....	15

— or —

ABS 355 Vertebrate Zoology.....	4
ABS 376 Wildlife Ecology.....	3
ABS 475 Habitat Management for Small Wildlife.....	4
ABS 476 Big Game Habitat Management.....	3
Approved supporting courses.....	15

<sup>1</sup> Both CHM 231 and 235 must be taken to secure SQ credit  
<sup>2</sup> Both ABS 225 and 226 must be taken to secure SQ credit.

Biology and plant biology courses regularly offered on the Polytechnic campus include BIO 100, BIO 187, BIO 188, BIO 201, BIO 202, BIO 340, BIO 360, PLB 308, and PLB 414. For courses, see “School of Life Sciences,” page 597.

**BIS CONCENTRATION**

A concentration in applied biological sciences is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and interdisciplinary core, students in the BIS program take active roles creating their educational

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.



## EAST COLLEGE

plans and defining their career goals. For more information, see “School of Interdisciplinary Studies,” page 139.

### MINOR

The Applied Biological Sciences minor consists of 24 semester hours, including BIO 187 General Biology I, BIO 188 General Biology II, and at least 15 hours selected with the approval of an advisor; at least nine hours must be in the upper-division courses offered by the Department of Applied Biological Sciences.

### GRADUATE PROGRAMS

Faculty associated with the Applied Biological Sciences program also offer a program leading to an MS degree in Applied Biological Sciences. Selected faculty also participate with the Division of Graduate Studies and the Colleges of Architecture and Environmental Design and Liberal Arts and Sciences in programs leading to PhD degrees in Environmental Design and Planning, with a concentration in Planning, and a PhD degree in Plant Biology. See the *Graduate Catalog* for requirements.

#### APPLIED BIOLOGICAL SCIENCES (ABS)

##### E ABS 130 Introduction to Environmental Science. (4)

*fall*

Introduces resources, their physical and chemical properties, classification, energy dynamics, and the role they play in environmental quality. Lecture, lab.

*General Studies: SQ*

##### E ABS 191 First-Year Seminar. (1–3)

*selected semesters*

##### E ABS 207 Applied Plant Taxonomy. (3)

*spring*

Introduces identification of vascular plants emphasizing seed plants. Surveys seed plant families. Lecture, lab, field trips. Fee. Prerequisite: BIO 187.

##### E ABS 225 Soils. (3)

*fall*

Fundamental properties of soils and their relations to plant growth, nutrition of man and animals, and environmental quality. Prerequisite: CHM 101 or 113 (or its equivalent).

*General Studies: SQ (if credit also earned in ABS 226)*

##### E ABS 226 Soils Laboratory. (1)

*fall*

Selected exercises to broaden the background and understanding of basic soil principles. Lab. Fee. Pre- or corequisite: ABS 225.

*General Studies: SQ (if credit also earned in ABS 225)*

##### E ABS 260 Fundamentals of Urban Horticulture. (4)

*fall*

Principles and practices of horticulture, emphasizing development, growth, and propagation of horticultural plants and environmental factors that affect these processes. 3 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 187 or PLB 108.

*General Studies: SG*

##### E ABS 294 Special Topics. (1–4)

*selected semesters*

##### E ABS 300 Environmental Biology. (3)

*spring*

Ecosystem dynamics and the analysis of environmental impact from local to global scales. Introduces ecological risk assessment and life cycle analysis. Lecture, cooperative learning.

##### E ABS 301 Technology and Biology. (2)

*spring*

Demonstrations of a broad range of innovative technologies in molecular biology, cellular and organismal biology, horticulture, and wildlife and restoration ecology. Fee.

##### E ABS 302 Ethical and Policy Issues in Biology. (2)

*spring*

Policy environment and ethics in the practice of biology. Covers ethical reasoning, policy formulation, and regulatory agencies with examples from biotechnology and the environment.

##### E ABS 311 Applied Cellular Biology. (3)

*spring*

Overview of the biology of the cell, with emphasis on structure and function of biomolecules within the cell. Prerequisites: BIO 187; CHM 231 (or their equivalents).

##### E ABS 312 Structure and Function. (4)

*spring*

Surveys structural and functional attributes of plant and animals of particular importance in the applied biological sciences. Lecture, lab. Fee. Prerequisite: BIO 187.

##### E ABS 350 Applied Statistics. (3)

*fall and spring*

Statistical methods with applications in the biological sciences and natural resource management. Uses computers and the Internet. Prerequisite: MAT 117 (or its equivalent).

*General Studies: CS*

##### E ABS 355 Vertebrate Zoology. (4)

*spring*

Classification, anatomy, and physiology of the vertebrates. Lecture, lab. Prerequisites: BIO 188 and CHM 101 (or their equivalents).

##### E ABS 360 Southwest Home Gardening. (2)

*fall and spring*

Multimedia course for nonmajors surveying contemporary topics in Southwest home horticulture, including landscaping, flower and vegetable gardening, citriculture, interiorscaping, and others. Prerequisite: completion of General Studies SQ and SG requirements.

##### E ABS 362 Landscape Plants and Design. (4)

*spring*

Identification, design, and use of plants in urban landscapes. Lecture, lab. Cross-listed as PGM 367. Credit is allowed for only ABS 362 or PGM 367. Fee. Prerequisite: ABS 260 (or its equivalent).

##### E ABS 363 Landscape and Turf Irrigation. (4)

*fall*

Design, management, and maintenance of landscape and turf irrigation systems. Lecture, lab. Cross-listed as PGM 363. Credit is allowed for only ABS 363 or PGM 363. Fee. Prerequisite: ABS 260 (or its equivalent).

##### E ABS 364 Urban Forestry. (3)

*fall*

Care, maintenance, and valuation of the urban forest, including public and private landscape codes. Prerequisite: ABS 260 (or its equivalent).

##### E ABS 366 Indoor Plants. (3)

*fall or spring*

Identification, culture, and use of container-grown plants for interior environments. Prerequisite: ABS 260 or instructor approval.

##### E ABS 367 Urban Parks. (4)

*spring*

Overview of the management and maintenance of private and public parks, urban greenspaces, and recreational areas. Lecture, lab. Fee. Prerequisite: ABS 260 (or its equivalent).

##### E ABS 368 Plant Propagation. (3)

*spring*

Theory and application of sexual and asexual propagation techniques. Considers plant materials used both for urban horticulture and ecological restoration applications. 2 hours lecture, 3 hours lab. Fee. Prerequisite: BIO 188.

##### E ABS 370 Ecology. (3)

*fall*

Interactions between organisms and their environments; structure and dynamics of populations, communities, ecosystems, and landscapes, with emphasis on vegetation. Lecture, field trips. Prerequisite: BIO 188.

##### E ABS 372 Ecology: Ecosystems and Landscapes. (3)

*spring*

Structure and function of ecosystems, interactions of pattern and process in landscapes. Lecture, lab, field trips. Prerequisite: ABS 370.

**E ABS 374 Introduction to Wildlife Management. (4)***spring*

Managing wildlife in the Southwest, including life histories of small game, fur bearers, big game, and selected nongame specials. Fee. Lecture, lab, field trips. Prerequisite: completion of General Studies SQ and SG requirements.

**E ABS 375 Conservation Biology. (3)***spring*

Principles of conservation biology, management of threatened species and ecosystems, biodiversity patterns with emphasis on issues in the Southwest. Lecture, field trips. Fee. Prerequisite: ABS 374.

**E ABS 376 Wildlife Ecology. (3)***spring*

Examines ecological principles underlying wildlife population dynamics with emphasis on physiology, genetics, nutrition, and habitat factors. Lecture, lab. Prerequisite: ABS 370.

**E ABS 378 Wildlife Nutrition. (3)***fall*

Principles of nutrient metabolism in wildlife species, with emphasis on understanding the interaction of wildlife with their environment. Prerequisites: BIO 188; CHM 101.

**E ABS 380 Restoration and Wildlife Plants. (3)***fall*

Important wildland plants, including invasive and endangered species, wildlife food species, and species used for ecosystem restoration. Lecture, lab. Prerequisite: ABS 207 or 260.

**E ABS 381 Natural Resources Policy. (3)***fall*

Policies and regulations affecting management of natural resources, with emphases on wildlife and ecological restoration. Pre- or corequisite: ABS 300.

**E ABS 402 Vegetation and Wildlife Measurement. (3)***spring*

Vegetation inventory, sampling, monitoring, and evaluation. Methods of estimating wildlife populations, activity, and home ranges. Lecture, lab, 1 weekend field trip. Prerequisites: ABS 207, 350, 370.

**E ABS 425 Soil Classification and Management. (3)***selected semesters*

Principles of soil genesis, morphology, and classification. Presents management and conservation practices. Prerequisite: ABS 225 (or its equivalent).

**E ABS 430 Watershed Management. (3)***selected semesters*

Hydrologic, physical, biological, and ecological principles applied to watershed management. Impact of ecosystem manipulations on water yield and quality. Lecture, 1 weekend field trip. Prerequisite: ABS 225.

**E ABS 433 Riparian and Wetland Ecology. (3)***selected semesters*

Functions and components of riparian and wetland ecosystems and the management of these systems. Lecture, field trips. Prerequisite: ABS 370.

**E ABS 434 Soil Ecology. (3)***selected semesters*

Soils viewed in an ecosystem context, soil-plant relationships, nutrient budgets, and abiotic factors that influence soil processes. Lecture, lab, field trips. Prerequisites: ABS 225, 226, 370.

**E ABS 435 Ecological Modeling. (3)***fall*

Simulation modeling as a tool to study ecological processes and human impact on ecosystems and organisms. Lecture, lab. Prerequisites: ABS 350, 370.

**E ABS 440 Ecological Restoration Techniques. (3)***fall*

Techniques for ecological restoration, riparian and wetland restoration, and monitoring restoration success. Prerequisites: ABS 370, 380.

**E ABS 441 Ecological Restoration Practicum. (1)***fall*

Field experience in the evaluation and monitoring of implemented ecological restoration projects. Lab, field trips. Fee. Pre- or corequisite: ABS 440.

**E ABS 460 Organic Gardening. (2)***fall*

Applies principles and practices of organic gardening in the low desert, including environmental impacts of modern food production. 1 hour lecture, 3 hours lab. Fee. Prerequisite: ABS 260.

**E ABS 462 Greenhouse/Nursery Management. (4)***spring*

Greenhouse structures, environment, and nursery operations. Includes irrigation, nutrition, and other principles relative to production of nursery crops. 1 hour lecture, 3 hours lab. Fee. Prerequisite: ABS 260.

**E ABS 463 Golf and Sports Turf Management. (3)***fall*

Selection, establishment, and maintenance of turf grasses bred specifically for golf and sports facilities. Integrated lecture/lab. Cross-listed as PGM 463. Credit is allowed for only ABS 463 or PGM 463.

**E ABS 465 Senior Enterprise Project. (3)***fall and spring*

Selection and completion of an urban horticulture project with faculty advisor approval related to the field of study. Prerequisite: senior standing.

**E ABS 470 Mammalogy. (3)***fall*

Classification and biology of mammals, emphasizes North America. Pre- or corequisite: ABS 355.

**E ABS 471 Ornithology. (3)***spring*

Classification and biology of birds, emphasizing North America. Lecture, lab, field trips. Fee. Prerequisite: ABS 355.

**E ABS 475 Habitat Management for Small Wildlife. (4)***fall*

Habitat management considerations and practices for small game and nongame wildlife species in North America. Lecture, lab, field trips. Fee. Prerequisites: ABS 370, 376, 380.

**E ABS 476 Big Game Habitat Management. (3)***spring*

Habitat management considerations and practices for big game wildlife species in North America. 2 hours lecture, 3 hours lab. Prerequisites: ABS 370, 376. Pre- or corequisite: ABS 402.

**E ABS 480 Ecosystem Management and Planning. (3)***selected semesters*

Principles of ecosystem management, with emphasis on economic and policy constraints on the planning process. Risk assessment and management. Lecture, 1 weekend field trip. Prerequisites: both ABS 300 and senior standing or only instructor approval.

*General Studies: L***E ABS 481 Riparian and Wetland Restoration. (3)***fall*

Principles and problems in the restoration of degraded riparian and wetland ecosystems. Construction of wetlands. Prerequisites: ABS 433, 440.

**E ABS 482 Ecology and Planning for Restoration. (3)***spring*

Ecological principles and resource planning processes applied to the restoration of degraded landscapes. Prerequisites: ABS 225, 372, 440.

**E ABS 483 Restoration Planning Practicum. (2)***spring*

Field experience in ecological restoration techniques, selection of mitigation techniques, and implementation planning. Lab, extended field trip over spring break. Fee. Pre- or corequisite: ABS 482.

**E ABS 484 Internship. (1–12)***selected semesters***E ABS 485 GIS in Natural Resources. (3)***fall*

Principles of Geographic Information Systems (GIS) utilized in natural resource management. Use of computers for spatial analysis of

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L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

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natural resources. Lecture, lab. Prerequisite: ABS 350 (or its equivalent).

**E ABS 486 Introduction to Remote Sensing. (4)**

*selected semesters*

Remote sensing technologies in natural resource management using computerized data from aerial photography and satellite imagery. Not for graduate credit. Lecture, lab. Prerequisite: ABS 485.

**E ABS 489 Undergraduate Research. (1–3)**

*fall and spring*

Undergraduate research under the supervision of an applied biological sciences faculty member. Prerequisite: junior or senior standing.

**E ABS 490 Applied Biological Sciences Seminar. (1)**

*fall and spring*

Current literature and significant developments related to applications of the biological sciences. May be repeated for credit. Prerequisite: junior or senior standing.

**E ABS 492 Honors Directed Study. (1–6)**

*selected semesters*

**E ABS 493 Honors Thesis. (1–6)**

*selected semesters*

**E ABS 494 Special Topics. (1–4)**

*selected semesters*

**E ABS 498 Pro-Seminar. (1–7)**

*selected semesters*

**E ABS 499 Individualized Instruction. (1–3)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see “Omnibus Courses,” page 63.

**Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access [www.asu.edu/catalog](http://www.asu.edu/catalog) on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see “Graduate-Level Courses,” page 62.

nic campus programs such as manufacturing engineering technology, aeronautical management technology, industrial technology, and business administration.

**Graduation Requirements**

The completion of 120 semester hours—including First-Year Composition, General Studies (see “General Studies,” page 93), and major requirements—leads to the BS degree. The major allows for at least 21 semester hours of electives. The major requirements for the BS degree in Applied Psychology consist of a 28-semester-hour core of psychology courses, 12 semester hours in applied psychology, and 18 semester hours of related course work.

**Core Courses.** Core courses provide a general background in the basic scientific areas of psychology and provide a culminating experience to integrate the varied studies.

PGS 101 Introduction to Psychology <i>SB</i> .....	3
PGS 350 Social Psychology <i>SB</i> .....	3
PSY 230 Introduction to Statistics <i>CS</i> .....	3
PSY 290 Research Methods <i>L/SG</i> .....	4
PSY 323 Sensation and Perception .....	3
PSY 324 Memory and Cognition .....	3
PSY 325 Physiological Psychology .....	3
PSY 330 Statistical Methods <i>CS</i> .....	3
PSY 477 Applied Psychology Capstone Experience* .....	3
or HON 493 Honors Thesis <i>L</i> (3)	
Total .....	28

\* This PSY course is offered only by the Polytechnic campus. All other PSY courses listed above are offered by the Polytechnic and Tempe campuses.

**Applied Psychology Courses.** Students work with an advisor to select courses in Applied Psychology emphasizing human-computer interaction, aviation, training, manufacturing, or methods. Course work must include a minimum of four of the following courses:

PGS 304 Effective Thinking <i>L</i> .....	3
PGS 471 Psychological Testing .....	3
PSY 320 Learning and Motivation.....	3
PSY 360 Cognitive Science* .....	3
PSY 390 Experimental Psychology <i>L</i> .....	3
PSY 437 Human Factors <i>L</i> .....	3
PSY 438 Human-Computer Interaction* .....	3
PSY 439 Training and Skill Acquisition* .....	3
PSY 440 Industrial/Organizational Psychology* .....	3
PSY 448 Human Factors in Transportation* .....	3
PSY 449 Human Factors in Sport* .....	3
PSY 494 Special Topics .....	1–4

\* This PSY course is offered only by the Polytechnic campus. All other PSY courses listed above are offered by the Polytechnic and Tempe campuses.

**Related Course Work**

BIO course with a lab .....	4
MAT 210 Brief Calculus <i>MA</i> .....	3
or a higher MAT course (3)	
Computer skills course.....	3
Writing skills course .....	3
Courses selected in consultation with an advisor .....	5
Total .....	18

**Faculty of Applied Psychology**

[www.poly.asu.edu/ecollege/appliedpsych](http://www.poly.asu.edu/ecollege/appliedpsych)

480/727-1177

SUTON Third Floor

**Roger W. Schvaneveldt, Faculty Head**

**Professors:** Cooke, Schvaneveldt

**Assistant Professors:** Becker, Gray

**APPLIED PSYCHOLOGY—BS**

This major offers a traditional psychology core leading to graduate school preparation and/or to applications in human factors with emphasis on human-computer interaction, aviation, or manufacturing. Although most careers in psychology require graduate training, there are some employment opportunities for BS students in applied settings. For example, there is a need for individuals who can help deal with problems of usability of products and systems. The Applied Psychology program offers courses and experiences to prepare students for these positions. The rigor of the major also provides strong preparation for further graduate study in psychology. The program serves students in other Polytech-

**Minor in Applied Psychology**

The minor in applied psychology consists of 22 semester hours with at least 12 being upper-division courses. The following are required courses that must be completed with a grade of “C” (2.00) or higher:

PGS 101 Introduction to Psychology <i>SB</i> .....	3
PSY 230 Introduction to Statistics <i>CS</i> .....	3
or equivalent statistics course	
PSY 290 Research Methods <i>L/SG</i> .....	4
PSY 437 Human Factors <i>L</i> .....	3
or PSY 438 Human-Computer Interaction* (3)	
or PSY 440 Industrial/Organizational Psychology* (3)	
Additional hours of upper-division PSY and/or PGS courses.....	9

\* This PSY course is offered only by the Polytechnic campus. All other PSY courses listed above are offered by the Polytechnic and Tempe campuses.

A maximum of three semester hours from the following courses can be used to satisfy minor requirements:

PGS 399 Supervised Research.....	3
PGS 499 Individualized Instruction.....	3
or PSY 499 Individualized Instruction (3)	
PSY 492 Honors Directed Study.....	3

*Note:* A minimum of three classes (two of which are in the upper division) must be taken in residence at ASU.

For more information about program requirements and courses, call an East College advisor at 480/727-1333, or access the Web site at [www.poly.asu.edu/ecollege/appliedpsych](http://www.poly.asu.edu/ecollege/appliedpsych).

For PGS courses and additional PSY courses, see “Department of Psychology,” page 635.

**PSYCHOLOGY (SCIENCE AND MATHEMATICS) (PSY)**

For more PSY courses, see the “Course Prefixes” table, or access [www.asu.edu/aad/catalogs/courses](http://www.asu.edu/aad/catalogs/courses). The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.

**E PSY 360 Cognitive Science. (3)**

*selected semesters*

Examines cognition from the varied perspectives of philosophy, linguistics, psychology, computer science (artificial intelligence), and neuroscience. Lecture, discussion. Prerequisite: PSY 324.

**E PSY 438 Human-Computer Interaction. (3)**

*once a year*

Theories, methods, and findings concerning the usability of computer systems and the design of effective user interfaces. Lecture, discussion, projects. Prerequisite: PSY 437.

**E PSY 439 Training and Skill Acquisition. (3)**

*once a year*

Theories, methods, and findings concerning the acquisition of skilled performance and the design of effective training systems. Lecture, discussion, projects. Prerequisite: PSY 437.

**E PSY 440 Industrial/Organizational Psychology. (3)**

*once a year*

Examines personnel selection, performance assessment, job and workplace design, job satisfaction, organizational behavior, management systems, and industrial safety. Lecture, discussion, projects. Prerequisite: PSY 230 (or an equivalent statistics course).

**E PSY 448 Human Factors in Transportation. (3)**

*selected semesters*

Examines human performance and human-machine design issues in aviation and ground transportation. Integrated lecture/lab. Pre- or corequisite: PSY 323.

**E PSY 449 Human Factors in Sport. (3)**

*selected semesters*

Examines how psychological principles can be applied to enhance the performance of athletes and coaches. Lecture, discussion. Pre- or corequisites: PSY 320, 323.

**E PSY 477 Applied Psychology Capstone Experience. (3)**

*fall and spring*

Applied psychology from a systems perspective. Requires a report based on research and/or applied work as a culminating experience. Lecture, discussion, projects. Prerequisite: senior standing.

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see “Omnibus Courses,” page 63.

**Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access [www.asu.edu/aad/catalogs](http://www.asu.edu/aad/catalogs) on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see “Graduate-Level Courses,” page 62.

**Faculty of Business Administration**

[www.poly.asu.edu/ecollege/businessadmin](http://www.poly.asu.edu/ecollege/businessadmin)

480/727-1287

SUTON Third Floor

**Roger W. Hutt, Faculty Head**

**Professors:** Daneke, Edwards, Kagan, Marquardt, Richards, Shultz, Thor

**Associate Professors:** Butler, Hutt, Manfredo, Patterson

**Assistant Professor:** Skilton

**Lecturer:** Watson

**BUSINESS ADMINISTRATION—BS**

The BS degree in Business Administration offers a survey of contemporary business disciplines and additional depth in at least three disciplines. The curriculum enables students to gain essential business competencies, knowledge of business disciplines and methods, and appreciation for contemporary business environments and cultures. Students prepare for careers in business, industry, or government, as well as for career advancement and entrepreneurial enterprises. This program operates under the umbrella of the AACSB International–accredited Tempe campus W. P. Carey School of Business, but it is offered through East College.

A total of 120 semester hours is required for graduation with a minimum of 51 semester hours of upper-division credit. As part of the undergraduate degree program, students complete the General Studies requirement (see “General Studies,” page 93).

Requirements for the Business Administration major consist of 30 semester hours of lower-division core and skill courses, 22 semester hours of upper-division core courses,

**L** literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See “General Studies,” page 93.

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one three-semester-hour capstone course, and 18 semester hours of approved electives. All of the upper-division business courses (with the exception of nine semester hours) must be taken at Polytechnic campus.

### Business Administration Core

BUA 300 Career Management.....	1
FIN 300 Fundamentals of Finance.....	3
IBS 300 Principles of International Business <i>G</i> .....	3
LES 305 Legal, Ethical, and Regulatory Issues in Business.....	3
MGT 300 Organizational Management and Leadership.....	3
MKT 300 Principles of Marketing.....	3
SCM 300 Global Supply Operations.....	3
TWC 447 Business Reports <i>L</i> .....	3
Total.....	22

### Capstone Course (Three Semester Hours)

MGT 440 Small Business and Entrepreneurship.....	3
or BUA 440 Strategic Management (3)	

### Approved Electives (18 Semester Hours)

Electives.....	18
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Students select 18 semester hours of electives toward a goal of building upon and integrating prior and current course work. This set of courses, which must be approved by the Business Administration program head, allows students to study a subset of business problems or issues as well as focus on their career interests.

Approved electives include courses in Polytechnic campus industry-specific business programs (Aeronautical Management Technology, Agribusiness, and Technology Management).

For the latest information about application, admissions, program requirements, and courses, call East College at 480/727-1333, or access the Web site at [www.poly.asu.edu/ecollege/businessadmin](http://www.poly.asu.edu/ecollege/businessadmin).

## REAL ESTATE—BS

The Real Estate faculty offer a unique, integrated, one-year program designed for the student's last year of college. This innovative and award-winning program emphasizes student involvement with real estate executives on projects in the Phoenix metropolitan area. Students work in teams to develop their analytical, communication, technology, and team skills.

The program is organized around five aspects of real estate: brokerage/management, development, financing, investments, and market analysis. With broad interdisciplinary perspective, emphasis on team work, and involvement in projects, students may pursue careers in land development, investment analysis, appraisal, property management, brokerage, and mortgage finance.

Successful completion of the program satisfies the requirements of the major based on the following courses:

LES 411 Real Estate Law.....	3
REA 300 Real Estate Analysis.....	3
REA 331 Real Estate Finance.....	3
REA 401 Real Estate Appraisal.....	3
REA 441 Real Estate Land Development.....	3
REA 456 Real Estate Investments.....	3
Total.....	18

## Minor in Small Business

The minor in small business is available to nonbusiness majors and consists of 18 semester hours, with five required courses and one approved elective. BUA 380 Small Business Leadership is a prerequisite or corequisite for other courses.

### Requirements

BUA 380 Small Business Leadership.....	3
BUA 381 Small Business Accounting and Finance.....	3
BUA 382 Small Business Sales and Market Development.....	3
BUA 383 Small Business Working Relationships.....	3
BUA 384 Small Business Operations and Planning.....	3
Approved elective.....	3
Total.....	18

## BIS Concentration in Small Business

The requirements for the small business concentration, for BIS students only, are identical to those for the minor in Small Business listed above. For BIS degree requirements, see "School of Interdisciplinary Studies," page 139.

### BUSINESS ADMINISTRATION (BUA)

#### E BUA 300 Career Management. (1)

*fall, spring, summer*

Provides professional program business administration students with information on ASU business-related courses, business careers, interviewing, job hunting, and résumé skills.

#### E BUA 330 Organizational Leadership. (3)

*fall and spring*

Strategies, skills, and techniques that promote successful leadership within organizations. Practice leadership skills and self-discovery in preparation for leadership positions.

#### E BUA 380 Small Business Leadership. (3)

*fall, spring, summer*

Develops leadership skills needed to form, lead, and operate a small business. Emphasizes creating a vision, research, and problem solving. Lecture, team teaching, collaborative learning.

#### E BUA 381 Small Business Accounting and Finance. (3)

*fall and spring*

Accounting and finance skills needed by small business owners to acquire, allocate, and track monetary resources and evaluate performance. Lecture, team teaching, collaborative learning.

#### E BUA 382 Small Business Sales and Market Development. (3)

*fall and spring*

Building and maintaining customers, developing a market identity and a niche, and the importance of sales. Lecture, team teaching, collaborative learning.

#### E BUA 383 Small Business Working Relationships. (3)

*fall and spring*

Addresses communication and the people in a business—clients, employees, suppliers, competitors, governments, family, and self development. Lecture, team teaching, collaborative learning.

#### E BUA 384 Small Business Operations and Planning. (3)

*fall and spring*

Planning and executing plans—the what, when, where, how, and who from product/service/project idea to pay back or completion. Lecture, team teaching, collaborative learning.

#### E BUA 394 Special Topics. (1–4)

*selected semesters*

Topics may include the following:

- Business Professional Development. (1)
- Professional Development. (1)

#### E BUA 440 Strategic Management. (3)

*fall, spring, summer*

Strategic formulation and administration of the total organization, including integrative analysis and strategic plan; interrelationship of business functional areas. Prerequisites: professional program business student; senior standing.

**E BUA 441 Entrepreneurship and Feasibility. (3)**

*fall, spring, summer*

Assessment of the opportunities, risks, and challenges associated with business start-up and continued operation. Prerequisites: completion of 100 hours; professional program business student. Pre- or corequisite: completion of all Business Administration core requirements.

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**REAL ESTATE (REA)**

*For more REA courses, see the "Course Prefixes" table, or access [www.asu.edu/aad/catalogs/courses](http://www.asu.edu/aad/catalogs/courses). The campus designation—D (Downtown Phoenix), E (Polytechnic), M (Tempe), or W (West)—may affect how courses may be used to fulfill requirements.*

**E REA Note 1.** In addition to individual course prerequisites, nonbusiness students must have at least a 2.50 ASU cumulative GPA, a 2.50 ASU business GPA, and 56 earned semester hours to register for any upper-division business course unless otherwise noted.

**E REA 300 Real Estate Analysis. (3)**

*once a year*

Applies economic theory and analytical techniques to real estate markets. Topics include law, finance, appraisal, market analysis, investments, development. See REA Note 1. Prerequisite: professional program business student.

**E REA 331 Real Estate Finance. (3)**

*once a year*

Legal, market, and institutional factors related to financing proposed and existing properties. Emphasizes current financing techniques and quantitative methods. See REA Note 1. Prerequisites: FIN 300; professional program business student.

**E REA 401 Real Estate Appraisal. (3)**

*once a year*

Factors affecting the value of real estate. Theory and practice of appraising and preparation of the appraisal report. Appraisal techniques. See REA Note 1. Prerequisites: REA 300; professional program business student.

**E REA 441 Real Estate Land Development. (3)**

*once a year*

Neighborhood and city growth. Municipal planning and zoning. Development of residential, commercial, industrial, and special purpose properties. See REA Note 1. Prerequisites: REA 300; professional program business student.

**E REA 456 Real Estate Investments. (3)**

*once a year*

Analyzes investment decisions for various property types. Cash flow and rate of return analysis. See REA Note 1. Prerequisites: FIN 300; professional program business student.

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**Faculty of Education**

[www.poly.asu.edu/ecollege/education](http://www.poly.asu.edu/ecollege/education)

480/727-1103

SUTON 240E

**Bette S. Bergeron, Faculty Head**

**Professors:** Bergeron, Darst

**Assistant Professors:** Kulinna, Marble, Smith

**Clinical Assistant Professors:** Gomez, Molina-Walters, White-Taylor

**Senior Lecturers:** Stever, Wenhart

**Lecturers:** Foley, Oliver, Orłowicz, Prest, Rinkol, Rome

**ELEMENTARY EDUCATION—BAE**

**Program Overview**

The Elementary Education program at the Polytechnic campus is unique in its focus on intensive field experiences, practical application of current theory, and emphasis on technology. The curriculum is also focused on and directly aligned with Arizona's standards for teachers. Courses are arranged sequentially and taken with peer cohorts in four semester-long blocks. Each semester Elementary Education students are immersed in field experiences that directly link with course discussions and assignments. Course instructors have taught in a variety of K–8 settings and can therefore augment class experiences with practical applications. Current educational technologies are incorporated into course delivery and assignments. Additionally, students have the opportunity to choose between the daytime Elementary Education program at the Polytechnic campus or one of the campus's district-based evening cohorts.

**Graduation Requirements**

A total of 120 semester hours is required for graduation with a minimum of 45 semester hours of upper-division credit. As part of the undergraduate degree program, students will complete ASU General Studies (see "General Studies," page 93) requirements. In addition, Elementary Education students are required to complete 18 semester hours in an academic specialization, which is tailored to an individual student's academic strengths (e.g., math, science, social studies, English). The remaining program hours, which specifically focus on the teaching profession, are outlined below. Students must first be admitted to the Polytechnic Elementary Education program before enrolling in the Professional Preparation Program courses (Blocks I–IV).

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See "General Studies," page 93.

## EAST COLLEGE

### Foundations (15 Semester Hours)\*

EDP 310 Educational Psychology <i>SB</i> .....	3
EDP 313 Childhood and Adolescence.....	3
MCE 446 Understanding the Culturally Diverse Child <i>C</i> .....	3
MTE 180 Theory of Elementary Mathematics.....	3
SPE 311 Orientation to Education of Exceptional Children <i>SB, C</i> .....	3

\* For foundation courses, see “College of Education,” page 349.

### Professional Preparation Program\*

#### Block I

EDC 320 Integrated Learning Experience I: Learning Climate ....	2
EDC 330 Literacy I: Emerging Literacy and Phonemic Awareness .....	3
EDC 354 Educational Media in the Classroom .....	3
EDC 355 Accommodating Instruction for Diverse Learners.....	3
EDC 474 Field Experience .....	0–1

#### Block II

EDC 325 Integrated Learning Experience II: Instructional Design and Implementation .....	2
EDC 335 Literacy II: Intermediate Literacy and Phonetic Principles.....	3
EDC 345 Math Methods for the Elementary Classroom.....	3
EDC 474 Field Experience .....	0–1
ELL 415 Structured English Immersion (SEI) Methods.....	3

#### Block III

EDC 420 Integrated Learning Experience III: Assessment .....	2
EDC 430 Literacy III: Interventions .....	3
EDC 440 Science Methods for the Elementary Classroom .....	3
EDC 450 Social Studies Methods for the Elementary Classroom .....	3
EDC 474 Field Experience .....	0–1

#### Block IV

EDC 425 Integrated Learning Experience IV: Professional Knowledge .....	2
EDC 484 Student Teaching in the Elementary School .....	10–12

\* Block courses can only be taken upon admission to the Elementary Education program.

**Postbaccalaureate Program.** Individuals who hold a bachelor’s degree from an accredited institution are encouraged to participate in the Elementary Education program as non-degree graduate students. Postbaccalaureate students complete the same professional preparation program courses as outlined above, which are augmented by the students’ unique life and work experiences.

In addition to participation in any of the four-semester undergraduate Elementary Education programs, postbaccalaureate students also have the option of an accelerated program with a master’s degree option (“TEACH ME”). For more information, call 480/727-1103.

**Application.** Applications for the Polytechnic Elementary Education programs are due October 15 for spring admission, and April 15 for fall admission. Students eligible for admission must meet the following criteria:

1. admission to the Polytechnic campus;
2. a minimum cumulative GPA of 2.50;
3. completion of at least 56 semester hours at the time of admission (undergraduate degree-seeking students); or, completion of a bachelor’s degree

from an accredited institution (postbaccalaureate students); and

4. evidence of competence in written English.

Applications must include two letters of recommendation and a résumé outlining work with school-age children and/or their families. Students seeking admission to the postbaccalaureate “TEACH ME” program must also be admitted to the Division of Graduate Studies. Students should call the Polytechnic campus Teacher Education Office at 480/727-1103 for complete admission packet information and eligibility requirements.

**State Certification.** Students who successfully complete the undergraduate or postbaccalaureate routes to Elementary Education teacher preparation at the Polytechnic campus are recommended for K–8 certification in the State of Arizona pending the completion of all other requirements mandated by the state. These additional requirements include, but are not limited to, successful completion of all appropriate areas of the Arizona Education Proficiency Assessment and course work in the United States and Arizona constitutions. Because of the possibility that requirements for state certification may change, students are urged to maintain close contact with their education advisor.

## SECONDARY EDUCATION—BAE

**Physical Education.** The faculty of education offer the BAE in Secondary Education with a concentration (academic specialization) in physical education. Students interested in obtaining certification to teach physical education will major in Secondary Education with a concentration in physical education. Once all state certification requirements are met, graduates are eligible to teach physical education in grades K–12.

### Graduation Requirements

A total of 120 semester hours is required for graduation, with a minimum of 45 hours of upper-division credit. As part of the undergraduate degree program, students meet the General Studies requirement (see “Meeting the General Studies Requirement,” page 93). Courses specific to the physical education concentration include courses in the content core (including courses offered by Exercise and Wellness), education foundations, and in the methods of teaching physical education. The program concludes with student teaching experiences in both an elementary and junior high/high school setting.

**Application.** Students interested in pursuing physical education/Secondary Education need to be admitted into the Education unit before taking the methods courses (usually during the junior year). The following are requirements for admission to the physical education program:

1. completion of 56 semester hours, including core content course work in physical education/exercise and wellness (the candidate should meet directly with the advisor to determine appropriate content course work that is to be completed before formal admittance);
2. an overall 2.50 GPA within the area of concentration;

3. proficiency in written English, met in one of the following ways: (a) GPA of 3.00 in ENG 101 and 102 (or equivalent) or (b) successful completion of a writing tutorial assigned by the Education unit; and
4. formal application to the Polytechnic Education program, including two letters of recommendation and current résumé; the résumé and letters should outline the candidate’s experiences with children and/or their families and show proficiency in the content (i.e., physical education).

**Advising Information.** Students interested in the physical education program are advised through the Education unit. Students interested in the program should contact the Polytechnic Education Office to make an appointment with an advisor. Advising is required at the time a student seeks formal admission into the methods course sequence (approximately the junior year). However, students are encouraged to seek advising from Education as soon as they decide to pursue the physical education certification program.

For the latest information about application, admissions, program requirements, and courses, access the Web site at [www.poly.asu.edu/ecollege/education](http://www.poly.asu.edu/ecollege/education), or call the Polytechnic campus Teacher Education Office at 480/727-1103 or the prospective student advisor at 480/727-1745.

**Physical Education.** Candidates for the BAE degree are required to complete course work in foundations, exercise, and wellness (content specialization), and in teacher preparation. Students must receive a grade of “C” (2.00) or higher and maintain a cumulative GPA of at least 2.50. Specific course work includes the following:

**Foundations (17 Semester Hours)\***

BIO 201 Human Anatomy and Physiology I <i>SG</i> .....	4
BIO 202 Human Anatomy and Physiology II.....	4
EDP 310 Educational Psychology <i>SB</i> .....	3
EDP 313 Childhood and Adolescence.....	3
SPE 311 Orientation to Education of Exceptional Children <i>SB, C</i> .....	3

\* All foundation courses must be in progress or successfully completed with a grade of “C” (2.00) or higher at the time of application to the preparation program.

**Exercise and Wellness (15 Semester Hours)\***

EXW 300 Foundations of Exercise and Wellness <i>L/SB</i> .....	3
EXW 310 Computer Skills and Technology for Exercise and Wellness <i>CS</i> .....	3
EXW 315 Physiological Foundations of Movement .....	3
EXW 330 Kinesiological Foundations of Movement .....	3
EXW 450 Cultural and Social Issues in Exercise and Wellness <i>SB, C</i> .....	3

\* At least three EXW courses must be in progress or completed at the time of application to teacher preparation.

**Teacher Preparation (42–46 Semester Hours)**

**Block I**

PPE 210 Teaching Fitness Activities for K–12 Students* .....	2
PPE 350 Physical Education for the Elementary School.....	3
PPE 474 Field Experience in Physical Education .....	0–1

**Block II**

PPE 215 Teaching Team Sports* .....	2
PPE 355 Physical Education in the Secondary School.....	3
PPE 474 Field Experience in Physical Education .....	0–1
RDG 301 Literacy and Instruction in the Content Areas .....	3

**Block III**

PPE 294 ST: Teaching Lifetime Activities for K–12 Students* .....	2
PPE 360 Adapted and Inclusive Physical Education .....	3
PPE 480 Professional Seminar for Physical Education .....	3
PPE 484 Internship: Student Teaching in Physical Education (Elementary) .....	6
PPE 494 ST: Motor Development.....	3
Physical education elective .....	3

**Block IV**

EDC 405 Classroom Management K–12.....	3
ELL 415 Structured English Immersion (SEI) Methods.....	3
PPE 294 ST: Teaching Adventure Activities for K–12 Students* .....	2
PPE 484 Internship: Student Teaching in Physical Education (Secondary).....	6

\* A minimum of six semester hours is required for teaching activity courses; these can be substituted with EXW 212.

**APPLIED BIOLOGICAL SCIENCES–BS  
SECONDARY EDUCATION CONCENTRATION**

**Program Overview**

Applied Biological Sciences majors can complete requirements for state certification in Secondary Biology through a concentration in applied biological sciences/secondary education. See “Applied Biological Sciences/Secondary Education Concentration,” page 220. Students complete course work in the applied biological sciences core, science content courses related to secondary biology, and courses specific to the secondary education curriculum and instruction. The program concludes with full-time student teaching in secondary science classrooms.

**Graduation Requirements**

A total of 120 semester hours is required for graduation with a minimum of 45 hours of upper-division credit. As part of the undergraduate degree program, students meet the General Studies requirement (see “General Studies,” page 93). Courses specific to the applied biological sciences/secondary education concentration are outlined below:

**Applied Biological Sciences Core**

ABS 300 Environmental Biology .....	3
ABS 301 Technology and Biology .....	2
ABS 302 Ethical and Policy Issues in Biology .....	2
ABS 350 Applied Statistics or equivalent <i>CS</i> .....	3
BIO 187 General Biology I <i>SG</i> .....	4
BIO 188 General Biology II <i>SQ</i> .....	4
BIO 340 General Genetics.....	4
MAT 210 Brief Calculus <i>MA</i> .....	3
Choose one course .....	3 or 4
ABS 311 Applied Cellular Biology (3)	
— or —	

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.



## EAST COLLEGE

ABS 312 Structure and Function (4)	
Choose one course .....	3 or 4
BIO 360 Animal Physiology (3)	
— or —	
PLB 308 Plant Physiology (4)	
Total .....	31–33

For students choosing the secondary education concentration, the following courses must be used as General Studies courses in order to graduate in 120 hours:

ABS 350 Applied Statistics <i>CS</i> <sup>1</sup> .....	3
BIO 187 General Biology I <i>SG</i> .....	4
BIO 188 General Biology II <i>SQ</i> .....	4
MAT 210 Brief Calculus <i>MA</i> .....	3

### Applied Biological Sciences/Secondary Education Concentration

ABS 207 Applied Plant Taxonomy .....	3
or ABS 355 Vertebrate Zoology (4)	
ABS 370 Ecology .....	3
ABS 490 Applied Biological Sciences Seminar .....	1
CHM 113 General Chemistry I <i>SQ</i> .....	4
CHM 116 General Chemistry II <i>SQ</i> .....	4
MIC 205 Microbiology <i>SG</i> <sup>2</sup> .....	3
MIC 206 Microbiology Laboratory <i>SG</i> <sup>2</sup> .....	1
PHY 101 Introduction to Physics <i>SQ</i> .....	4
Upper-division electives .....	2
Total .....	25–26

### Secondary Education Course Work

BIO 480 Methods of Teaching Biology .....	3
BIO 482 Advanced Methods of Teaching Biology .....	3
EDC 354 Educational Media in the Classroom .....	3
EDC 494 ST: Professional Knowledge .....	2
EDP 310 Educational Psychology <i>SB</i> .....	3
EDP 313 Childhood and Adolescence .....	3
RDG 301 Literacy and Instruction in the Content Areas .....	3
SDE 474 Field Experience .....	0–1
SDE 484 Student Teaching in Secondary Schools .....	10–12
SED 403 Middle and Secondary School Principles, Curricula, and Methods .....	3
SPE 394 ST: Inclusion Practices at the Secondary Level .....	3
Total .....	36–39
Concentration total .....	61–65

<sup>1</sup> An equivalent course may be taken in place of ABS 350.

<sup>2</sup> Both MIC 205 and 206 must be taken to secure SG credit.

### Strongly Recommended

MCE 446 Understanding the Culturally Diverse Child <i>C</i> .....	3
SPE 311 Orientation to Education of Exceptional Children <i>SB, C</i> .....	3

The Arizona Department of Education requires the following courses for certification; these courses must be completed before the Education unit can submit an Institutional Recommendation for certification:

EDC 405 Classroom Management K–12 .....	3
ELL 415 Structured English Immersion (SEI) Methods .....	3

### Application

Students interested in pursuing the applied biological sciences/secondary education concentration need to be admitted into the Education unit before taking the secondary methods courses (usually during the junior year). The following requirements for admission to the applied biological

sciences/secondary education concentration mirror those of acceptance into other education programs at the Polytechnic campus. Requirements for entry include

1. completion of 56 semester hours;
2. a 2.50 cumulative GPA;
3. a 2.50 GPA within the major (Applied Biological Sciences);
4. proficiency in written English, met in one of the following ways: (a) GPA of 3.00 in ENG 101 and 102 (or equivalent) or (b) successful completion of a written proficiency exam; and
5. formal application to the Polytechnic campus Education program, including two letters of recommendation and current résumé; the résumé and letters should outline the candidate's experiences with adolescents and/or their families and show proficiency in the content (i.e., applied biological sciences).

### Advising Information

Students interested in the applied biological sciences/secondary education concentration must participate in dual advising—in applied biological sciences and in education. Education advising is required at the time a student seeks admission to the Education unit. However, students are encouraged to seek advising from Education as soon as they decide to pursue the secondary education concentration. For more information about application, admission, program requirements, and courses, visit the Polytechnic campus Education Office, SUTON 240E, call 480/727-1103, or access the Web site at [www.poly.asu.edu/ecollege/education](http://www.poly.asu.edu/ecollege/education).

### EARLY CHILDHOOD EAST (EAC)

#### E EAC 494 Special Topics. (1–4)

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see “Omnibus Courses,” page 63.

**Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access [www.asu.edu/aad/catalogs](http://www.asu.edu/aad/catalogs) on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see “Graduate-Level Courses,” page 62.

### EDUCATION EAST (EDC)

#### E EDC 320 Integrated Learning Experience I: Learning Climate. (2)

*fall and spring*

Explores factors contributing to a positive and productive classroom learning environment. Interactive forum.

#### E EDC 325 Integrated Learning Experience II: Instructional Design and Implementation. (2)

*fall and spring*

Design and implementation of developmentally appropriate instruction, and the alignment of instruction with district and state academic standards. Interactive forum. Prerequisite: EDC 320.

#### E EDC 330 Literacy I: Emerging Literacy and Phonemic Awareness. (3)

*fall and spring*

Development of language from birth to age 8, and appropriate strategies for promoting growth in speaking, listening, reading, and writing. Applied inquiry. Corequisite: EDC 474.

**E EDC 335 Literacy II: Intermediate Literacy and Phonetic Principles. (3)**

*fall and spring*

Strategies for teaching literacy in intermediate elementary classrooms, the application of phonetic principles to instruction, and integrating literacy across disciplines. Applied inquiry. Prerequisite: EDC 330. Corequisite: EDC 474. Pre- or corequisite: EDC 325.

**E EDC 340 Writing and the Professional Educator. (3)**

*fall and spring*

Professional writing focused on foundational issues in education, including the culture of schooling, current social contexts, and educational law.

*General Studies: L*

**E EDC 345 Math Methods for the Elementary Classroom. (3)**

*fall and spring*

Developmentally appropriate practices for teaching and assessing mathematics in grades K–8. Applied inquiry. Fee. Prerequisite: MTE 180. Corequisite: EDC 474. Pre- or corequisite: EDC 325.

**E EDC 350 Educational Technology I: Applications. (1)**

*fall and spring*

Module focused on basic technological skills needed for managing classroom instruction. Lab.

**E EDC 351 Educational Technology II: Instruction and Evaluation. (1)**

*fall and spring*

Module focused on technology as an instructional medium, evaluation, and effective classroom use. Lab. Prerequisite: EDC 350.

**E EDC 352 Educational Technology III: Design. (1)**

*fall and spring*

Module focused on instructional design utilizing a variety of technologies, including multimedia. Lab. Prerequisite: EDC 351.

**E EDC 354 Educational Media in the Classroom. (3)**

*fall and spring*

Designing and implementing educational media into the K–12 curriculum. Includes instructional design, evaluation of sources, and introduction to multimedia applications. Prerequisite: acceptance into teacher preparation program.

**E EDC 355 Accommodating Instruction for Diverse Learners. (3)**

*fall and spring*

Identifying and accommodating learners with special needs, including classroom adaptations in instruction and assessment. Forum, practicum. Prerequisite: SPE 311. Corequisite: EDC 474. Pre- or corequisite: EDC 325.

**E EDC 405 Classroom Management K–12. (3)**

*fall, spring, summer*

Strategies for effective classroom management in K–12 schools. Includes models, application, and evaluation of a variety of management systems. Prerequisite: admittance to a teacher education program or instructor approval.

**E EDC 420 Integrated Learning Experience III: Assessment. (2)**

*fall and spring*

Principles related to classroom assessment, including the alignment of assessment to curriculum, test interpretation, and a variety of assessment techniques. Interactive forum. Prerequisite: EDC 325.

**E EDC 425 Integrated Learning Experience IV: Professional Knowledge. (2)**

*fall and spring*

Explores issues related to professional knowledge, including interdisciplinary instruction and the impact of the community on students' learning. Interactive forum. Prerequisite: EDC 420. Corequisite: EDC 484.

**E EDC 430 Literacy III: Interventions. (3)**

*fall and spring*

Strategies for accommodating students struggling with learning, with a focus on the areas of literacy acquisition and assessment. Forum, practicum. Prerequisites: EDC 335, 355. Corequisite: EDC 474. Pre- or corequisite: EDC 420.

**E EDC 440 Science Methods for the Elementary Classroom. (3)**

*fall and spring*

Developmentally appropriate practices for teaching and assessing sciences in grades K–8. Applied inquiry. Fee. Prerequisites: EDC 325, 345. Corequisite: EDC 474. Pre- or corequisite: EDC 420.

**E EDC 450 Social Studies Methods for the Elementary Classroom. (3)**

*fall and spring*

Developmentally appropriate practices for teaching and assessing social studies in grades K–8. Applied inquiry. Prerequisites: EDC 325, 335. Corequisite: EDC 474. Pre- or corequisite: EDC 420.

**E EDC 455 Diverse Learners in the K–8 Classroom. (3)**

*fall, spring, summer*

Identifies and implements instructional practices for students with diverse needs in the elementary classroom. Laws related to special populations. Interactive forum. Prerequisite: approval of the East Education Office.

**E EDC 460 Principles of Curriculum and Instruction in the K–8 Classroom. (3)**

*fall, spring, summer*

Current research and practices related to the K–8 curriculum, including application of motivation and learning theories, lesson development, and assessment. Interactive forum. Prerequisite: approval of the East Education Office.

**E EDC 465 Literacy Instruction in the K–8 Classroom. (3)**

*fall, spring, summer*

Principles of a developmentally appropriate elementary literacy curriculum and related instructional practices. Encompasses reading, language arts, writing, and oral expression. Interactive forum. Prerequisite: approval of the East Education Office. Corequisite: EDC 474.

**E EDC 474 Field Experience. (0–1)**

*fall and spring*

Applies course content in a K–8 school. Emphasizes observation, classroom management, planning and delivery of instruction, and assessment. Practicum. Fee. Corequisite: all methods courses in the teacher preparation program must be taken with Field Experience.

**E EDC 475 Social Studies Instruction in the K–8 Classroom. (3)**

*fall, spring, summer*

Principles of a developmentally appropriate social studies curricula and related instructional practices. Emphasizes cultural diversity and implications of a global society. Interactive forum. Prerequisite: approval of the East Education Office.

**E EDC 480 Theory of Mathematics and Science Instruction. (3)**

*fall, spring, summer*

Examines theoretical and conceptual frameworks of elementary mathematics and science instruction. Emphasizes academic content standards and prerequisite knowledge. Fee. Prerequisite: approval of the East Education Office.

**E EDC 484 Student Teaching in the Elementary School. (10–12)**

*fall and spring*

Supervised teaching in the area of specialization. Capstone internship in curriculum, instruction, and classroom management. Internship. Fee. Prerequisites: 2.50 GPA; completion of professional course sequence; approval of the East Education Office. Corequisite: EDC 425.

**E EDC 485 Science Instruction in the K–8 Classroom. (3)**

*fall, spring, summer*

Principles of a developmentally appropriate science curricula and related instructional practices, with an emphasis on learner-centered methodologies. Fee. Prerequisites: EDC 480 (or instructor approval); approval of the East Education Office. Corequisite: EDC 474.

**E EDC 494 Special Topics. (1–4)**

*selected semesters*

Topics may include the following:

- Professional Knowledge

**E EDC 495 Mathematics Instruction in the K–8 Classroom. (3)**

*fall, spring, summer*

Principles of a developmentally appropriate mathematics curricula and related instructional practices, including a range of learning theories and their application. Fee. Prerequisites: EDC 480 (or instructor approval); approval of the East Education Office. Corequisite: EDC 474.

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L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

## EAST COLLEGE

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access [www.asu.edu/aad/catalogs](http://www.asu.edu/aad/catalogs) on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

### ENGLISH AS A SECOND LANGUAGE (ELL)

#### E ELL 405 Language Minority Education. (3)

*fall, spring, summer*

Historical, philosophical, theoretical, pedagogical, and legal foundations of language minority education in the United States. Credit is allowed for only ELL 405 or 505.

#### E ELL 410 Linguistics: First - and Second-Language Acquisition and Use. (3)

*fall, spring, summer*

Examines current theories of first- and second-language acquisition and use and their application to ELL pedagogical contexts. Credit is allowed for only ELL 410 or 510.

#### E ELL 415 Structured English Immersion (SEI) Methods. (3)

*fall, spring, summer*

Prepares preservice teachers for linguistically diverse classrooms in which there are English Language Learners (ELLs) learning through Structured English Immersion (SEI) methodology. Focuses primarily on SEI strategies. Credit is allowed for only ELL 415 or 515.

#### E ELL 416 Advanced SEI Methods for ELLs. (3)

*fall, spring, summer*

More fully prepares teachers for linguistically diverse classrooms in which there are students learning through SEI methodology. Credit is allowed for only ELL 416 or 516. Prerequisite with a grade of "C" or higher: ELL 415.

#### E ELL 420 Literacy Methods for English Language Learners (ELLs). (3)

*fall, spring, summer*

Teaching reading and writing to English Language Learners (ELLs) with emphasis on integrated curriculum and literature-based instruction. Credit is allowed for only ELL 420 or 520.

#### E ELL 425 Assessment and Evaluation for English Language Learners (ELLs). (3)

*fall, spring, summer*

Discusses assessment methods for English Language Learners (ELLs) in the K–12 classroom through psychometric and sociocultural models of assessment. Credit is allowed for only ELL 425 or 525.

#### E ELL 430 Community and Parental Involvement in Language Minority Education. (3)

*fall, spring, summer*

Introduction to home-school collaboration using historical, educational, psychological, ethnic-social diversity, and sociological perspectives.

#### E ELL 445 Practicum with English Language Learners (ELLs). (3)

*fall, spring, summer*

Pairs students seeking a full ESL endorsement with full ESL-endorsed classroom teachers. Addresses areas including second language acquisition and development, assessment, and pedagogy. Practicum.

#### E ELL 484 Internship. (1–12)

*selected semesters*

#### E ELL 494 Special Topics. (1–4)

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access [www.asu.edu/aad/catalogs](http://www.asu.edu/aad/catalogs) on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

### INSTRUCTIONAL MEDIA (IMD)

#### E IMD 494 Special Topics. (1–4)

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

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### PHYSICAL EDUCATION EAST (PPE)

#### E PPE 210 Teaching Fitness Activities for K–12 Students. (2)

*fall, spring, summer*

Practical application of biomechanical, physiological, psychological, and learning principles in the analysis of skill acquisition and performance. Integrated lecture/lab. Fee.

#### E PPE 215 Teaching Team Sports. (2)

*fall, spring, summer*

Practical application of biomechanical, physiological, psychological, and learning principles in the analysis of skill acquisition and performance. Integrated lecture/lab. Fee.

#### E PPE 294 Special Topics. (1–4)

*selected semesters*

Topics may include the following:

- Teaching Adventure Activities for K–12 Students
- Teaching Lifetime Activities for K–12 Students

#### E PPE 350 Physical Education for the Elementary School. (3)

*fall and spring*

Scope and values of physical in elementary schools. Methods, materials, and practices in teaching for primary through upper grades. Integrated lecture/lab. Fee. Credit is allowed for only PPE 350 or 550. Prerequisite: field experience or instructor approval.

#### E PPE 355 Physical Education in the Secondary School. (3)

*fall and spring*

Current trends and theories such as elective programs, coed classes, legal issues, contract teaching, curriculum, and administration. Integrated lecture/lab. Fee. Credit is allowed for only PPE 355 or 555. Prerequisite: field experience or instructor approval.

#### E PPE 360 Adapted and Inclusive Physical Education. (3)

*fall, spring, summer*

Teaching individuals with disabilities physical skills and activities. Integrated lecture/lab. Credit is allowed for only PPE 360 or 560. Prerequisite: SPE 311 (or its equivalent).

#### E PPE 365 Teaching Physical Activity Concepts. (3)

*fall, spring, summer*

Teaching physical activity concepts in PE settings. Analyzes and critiques state and national physical education standards. Integrated lecture/lab. Credit is allowed for only PPE 365 or 565. Prerequisites: ENG 101, 102; EXW 300 (or its equivalent).

#### E PPE 370 Research on Teacher Education in Physical Education. (3)

*fall, spring, summer*

Discusses current research on teacher education across fields, with an emphasis on physical education pedagogy. Integrated lecture/lab. Credit is allowed for only PPE 370 or 570. Prerequisites: ENG 101, 102; EXW 300 (or its equivalent).

#### E PPE 375 Coaching Methods for Youth Sports. (3)

*fall, spring, summer*

Scope and values of coaching K–12. Methods, materials, and practice in coaching philosophy. Best practices and activities for grades K–12. Integrated lecture/lab. Credit is allowed for only PPE 375 or 575. Prerequisite: instructor approval.

#### E PPE 474 Field Experience in Physical Education. (0–1)

*fall and spring*

Analyzes course content in an elementary/secondary school setting. Emphasizes observation, pupil management, planning and delivering instruction and assessment. Practicum. Fee. Corequisite: PPE 350 or 355 or instructor approval.

**E PPE 480 Professional Seminar for Physical Education. (3)**

*fall and spring*

Methods of instruction, organization, and presentation of appropriate content in elementary and secondary physical education. Integrated lecture/lab. Prerequisites: PPE 350, 355. Corequisite: PPE 484.

**E PPE 484 Internship. (1–12)**

*fall and spring*

Practice of teaching. Relationship of practice and theory in teaching physical education. Internship. Fee. Prerequisites: PPE 350, 355. Corequisite: PPE 480.

**E PPE 494 Special Topics. (1–4)**

*selected semesters*

Topics may include the following:

- Motor Development

**E PPE 495 Research on Teaching in Physical Education. (3)**

*fall, spring, summer*

Contemporary research and theory on teaching across fields with an emphasis on physical education pedagogy; provides a practical research experience. Integrated lecture/lab. Prerequisite: EXW 300 (or its equivalent).

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**SCIENCE EDUCATION (SCI)**

**E SCI 294 Special Topics. (1–4)**

*selected semesters*

**E SCI 484 Internship. (1–12)**

*selected semesters*

**E SCI 494 Special Topics. (1–4)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see “Omnibus Courses,” page 63.

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**SECONDARY EDUCATION EAST (SDE)**

**E SDE 194 Special Topics. (1–4)**

*selected semesters*

**E SDE 294 Special Topics. (1–4)**

*selected semesters*

**E SDE 394 Special Topics. (1–4)**

*selected semesters*

**E SDE 484 Internship. (1–12)**

*selected semesters*

Topics may include the following:

- Student Teaching in Secondary Schools (10–12)

**E SDE 494 Special Topics. (1–4)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see “Omnibus Courses,” page 63.

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**SPECIAL EDUCATION EAST (SPC)**

**E SPC 294 Special Topics. (1–4)**

*selected semesters*

**E SPC 484 Internship. (1–12)**

*selected semesters*

**E SPC 494 Special Topics. (1–4)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see “Omnibus Courses,” page 63.

**Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access [www.asu.edu/catalog](http://www.asu.edu/catalog) on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see “Graduate-Level Courses,” page 62.

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**Department of Exercise and Wellness**

[www.poly.asu.edu/ecollege/wellness](http://www.poly.asu.edu/ecollege/wellness)

480/727-1945

EAW 109

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**William J. Stone, Chair**

**Professor:** Stone

**Associate Professors:** Swan, Tudor-Locke

**Assistant Professor:** Adams

**Senior Lecturer:** Woodruff

**Lecturer:** Sebren

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**EXERCISE AND WELLNESS—BS**

The BS degree in Exercise and Wellness offers two concentrations: (1) exercise and wellness and (2) health promotion. Exercise and Wellness students study physical activity and healthy lifestyles as they relate and contribute to optimal health and wellness. The exercise and wellness concentration is designed to prepare professionals and scholars in exercise and physical activity leadership as well as in wellness education. Areas of study include the kinesiological and physiological foundations of physical activity, exercise testing and prescription, as well as nutrition, stress management, social/cultural issues, and factors involved in health behavior change. The health promotion concentration is designed to prepare professionals and scholars in health and wellness promotion and disease prevention and management. Areas of study include epidemiology, health behavior change, prevention of chronic disease, program development and evaluation, as well as nutrition, stress management, social/cultural issues, and substance abuse. Students in both concentrations are exposed to the latest research and practice designed to enhance fitness, wellness, and healthy living, including both laboratory and field experiences. A unique aspect of both degree options in the Exercise and Wellness program is an outstanding internship program that provides preprofessional experience in all segments of fitness, wellness, health promotion, and the

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L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

## EAST COLLEGE

allied health professions in metropolitan Phoenix or elsewhere in the country.

Career opportunities range broadly across the several sectors of the industry related to fitness, wellness, health promotion, and the health professions. Those settings include worksite/corporate, clinical/medical, community/educational, and the private/commercial sector. The degree is also ideal preparation for advanced study in health professions such as cardiopulmonary rehabilitation, physical therapy, and athletic training, as well as graduate study in exercise and wellness and public health.

### Graduation Requirements

A total of 120 semester hours is required for graduation with a minimum of 45 semester hours of upper-division credit. As part of the undergraduate degree program, students complete ASU General Studies requirements. For a list of courses that meet ASU General Studies requirements, see “General Studies,” page 93.

Exercise and Wellness students are required to complete the following courses:

#### Required Core Courses

EXW 300 Foundations of Exercise and Wellness <i>L/SB</i> .....	3
EXW 310 Computer Skills and Technology for Exercise and Wellness <i>CS</i> .....	3
EXW 320 Program Development and Leadership.....	3
EXW 342 Health Behavior Change.....	3
EXW 400 Stress Management for Wellness.....	3
EXW 450 Cultural and Social Issues in Exercise and Wellness <i>SB, C</i> .....	3
EXW 484 Exercise and Wellness Internship.....	6
NTR 241 Human Nutrition.....	3
Total .....	27

Each EXW core course has specific prerequisite courses that must be taken before taking the respective core course. These prerequisite courses include the following:

BIO 201 Human Anatomy and Physiology I <i>SG</i> .....	4
BIO 202 Human Anatomy and Physiology II.....	4
CHM 101 Introductory Chemistry <i>SQ</i> .....	4
or any equivalent chemistry course	
COM 225 Public Speaking <i>L</i> .....	3
PGS 101 Introduction to Psychology <i>SB</i> .....	3
Total .....	18

**Exercise and Wellness Concentration.** The following EXW courses are required of all students in the exercise and wellness concentration:

EXW 212 Instructional Competency Laboratory.....	6
EXW 315 Physiological Foundations of Movement.....	3
EXW 330 Kinesiological Foundations of Movement.....	3
EXW 420 Exercise Testing.....	3
EXW 425 Exercise Prescription.....	3
Elective*.....	3
Total .....	21

\* Three semester hours must be selected from an approved list of concentration electives.

**Health Promotion Concentration.** The following EXW courses are required of all students in the health promotion concentration:

EXW 325 Fitness for Life.....	3
EXW 346 Health Promotion and Program Evaluation.....	3
EXW 350 Substance Abuse and Addictive Behavior.....	3
EXW 442 Physical Activity in Health and Disease <i>L</i> .....	3
EXW 444 Epidemiology.....	3
Elective*.....	6
Total .....	21

\* Six semester hours must be selected from an approved list of concentration electives.

### WELLNESS FOUNDATIONS MINOR

The minor in Wellness Foundations is appropriate for students in the BIS degree program. It consists of the following plus all prerequisite courses:

EXW 300 Foundations of Exercise and Wellness <i>L/SB</i> .....	3
EXW 325 Fitness for Life.....	3
EXW 342 Health Behavior Change.....	3
EXW 450 Cultural and Social Issues in Exercise and Wellness <i>SB, C</i> .....	3
EXW electives*.....	6
Total .....	18

\* Six semester hours must be selected from an approved list of EXW electives. See an advisor for a list of approved electives.

### BIS CONCENTRATION

A concentration in wellness foundations is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see “School of Interdisciplinary Studies,” page 139.

### APPLIED SCIENCE—BAS

The Bachelor of Applied Science (BAS) degree is a capstone degree for the Associate of Applied Science (AAS) degree. The BAS degree exposes students to advanced concepts and diverse critical thinking skills to prepare them for future career opportunities and professional advancement.

#### Admission

Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and 2.50 for nonresident applicants.

#### BAS Degree Graduation Requirements

The BAS degree program consists of 60 semester hours of upper-division courses, with 30 semester hours in residence. An overall GPA of 2.00 or higher is required.

AAS degree.....	60
Assignable credit.....	5
BAS core.....	15
Concentration .....	21

General Studies .....	19
Total .....	120

**General Studies Curriculum.** The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies courses are taken in the core or concentration. General Studies courses focus on contextual learning.

L .....	3
MA .....	3
HU .....	3
HU or SB .....	3
SB .....	3
SG .....	4
Total .....	19

**Assignable Credit.** Assignable credit allows space in the curriculum for an internship requirement.

**BAS Core**

EXW 300 Foundations of Exercise and Wellness <i>L/SB</i> .....	3
EXW 310 Computer Skills and Technology for Exercise and Wellness <i>CS</i> .....	3
EXW 320 Program Development and Leadership .....	3
EXW 325 Fitness for Life .....	3
EXW 346 Health Promotion and Program Evaluation .....	3
Total .....	15

**Wellness Concentration.** The wellness concentration is designed to prepare professionals in the area of wellness promotion and disease prevention and management.

**Wellness Concentration**

EXW 342 Health Behavior Change .....	3
EXW 350 Substance Abuse and Addictive Behavior .....	3
EXW 400 Stress Management for Wellness .....	3
EXW 442 Physical Activity in Health and Disease <i>L</i> .....	3
EXW 444 Epidemiology .....	3
EXW 450 Cultural and Social Issues in Exercise and Wellness <i>SB, C</i> .....	3
EXW 300- or 400-level elective .....	3
Total .....	21

**CERTIFICATE IN SPA MANAGEMENT**

The Spa Management Certificate program is a nondegree, 34-semester-hour program designed to prepare students for careers in spa administration. The program was designed and implemented in response to a rapidly growing spa industry, which has identified a real need for more directors, assistant directors, and supervisors, and for management candidates with formal education and training in spa administration. The required courses meet a comprehensive list of core competencies identified by the spa industry and an advisory committee of spa directors. This certificate is recognized by the International Spa Association, and it significantly enhances a graduate’s opportunity for placement and advancement within the industry.

Admission to the certificate program is based on a rubric that includes higher education credits, GPA, work experience, résumé, references, and a letter of intent.

**Required Courses**

BUA 330 Organizational Leadership .....	3
BUA 381 Small Business Accounting and Finance .....	3
BUA 382 Small Business Sales and Market Development .....	3
BUA 383 Small Business Working Relationships .....	3
EXW 325 Fitness for Life .....	3
EXW 400 Stress Management for Wellness .....	3
EXW 484 Exercise and Wellness Internship .....	6
EXW 498 Pro Seminar: Spa Management I .....	2
HHS 300 Overview of Complementary Health Systems .....	3
NTR 345 Development of Healthy Cuisines .....	3
WED 165 Overview of Massage Therapy* .....	2
Total .....	34

\* This course is offered through Chandler-Gilbert Community College.

Students must receive a grade of “C” (2.00) or higher in every course to earn the certificate. Any course in which a student fails to earn a “C” (2.00) or higher must be repeated.

**GRADUATE PROGRAMS**

The faculty offer programs leading to the MS degree in Exercise and Wellness. The department also participates with the Division of Graduate Studies and College of Education in the program leading to the PhD degree in Curriculum and Instruction with a concentration in exercise and wellness. See the *Graduate Catalog* for requirements.

**EXERCISE AND WELLNESS (EXW)**

**E EXW Note 1.** A \$5.00 towel and locker fee is required each semester by students using towel and locker facilities for physical activity courses.

**E EXW Note 2.** Physical activity instruction courses (EXW 105, 205, 305) may not be taken for audit. Excessive absences and/or tardiness are considered disruptive behavior.

**E EXW 100 Introduction to Health and Wellness. (3)**  
*fall and spring*

Current concepts in health, exercise, and wellness. Emphasis placed on personal health, theories, attitudes, beliefs, and behaviors. Cross-listed as HES 100/KIN 100. Credit is allowed only for EXW 100 or HES 100 or KIN 100.

*General Studies: SB*

**E EXW 105 Physical Activity Instruction: Beginning. (1)**  
*fall, spring, summer*

Beginning instruction in a variety of physical activities such as aerobics, aquatics, racquet sports, physical conditioning, and golf. “Y” grade only. May be repeated for credit. 2 hours per week. Activity. Fee. See EXW Notes 1, 2.

**E EXW 205 Physical Activity Instruction: Intermediate. (1)**  
*fall, spring, summer*

Intermediate-level instruction in a variety of physical activities. Continuation of EXW 105. “Y” grade only. May be repeated for credit. 2 hours per week. Activity. Fee. See EXW Notes 1, 2.

**E EXW 212 Instructional Competency Laboratory. (2)**  
*fall, spring, summer*

Methods of instructing and leading fitness activities, including aerobic, resistance, and flexibility activities. May be repeated for credit. Integrated lecture lab. See EXW Note 1. Prerequisite: Exercise and Wellness major.

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

## EAST COLLEGE

### **E EXW 215 Physical Activity and Healthy Lifestyles. (1)**

*fall, spring, summer*

Applies principles of physical activity to personal fitness testing and program planning for people of all ages. Telecampus course. Not open to Exercise and Wellness majors or to students who have credit for EXW 325.

### **E EXW 300 Foundations of Exercise and Wellness. (3)**

*fall, spring, summer*

Analyzes research in various disciplines that contribute to health promotion and wellness.

*General Studies: L/SB*

### **E EXW 301 Concepts of Fitness and Wellness. (1)**

*fall, spring, summer*

Guidelines for achieving health benefits of physical activity and other healthy lifestyles. Telecampus course. Not open to Exercise and Wellness majors or to students who have credit for EXW 325.

### **E EXW 302 Fundamentals of Wellness. (3)**

*fall and spring*

Overview of fundamental health, exercise and wellness concepts. Emphasizes personal wellness assessment and application.

Prerequisites: ENG 101, 105 (or 107).

### **E EXW 305 Physical Activity Instruction: Advanced. (1)**

*fall and spring*

Advanced-level instruction in a variety of physical activities. Continuation of EXW 105. May be repeated for credit. "Y" grade only. 2 hours per week. Activity. Fee. See EXW Notes 1, 2.

### **E EXW 310 Computer Skills and Technology for Exercise and Wellness. (3)**

*fall, spring, summer*

Applies computer technology to principles of social marketing, tailored communication, e-health consumerism, and statistical analysis. Integrated lecture/lab. Prerequisite: MAT 142.

*General Studies: CS*

### **E EXW 311 Special Populations in Exercise and Wellness. (3)**

*fall*

Introduces the challenged population and surveys the agencies that work with special populations.

### **E EXW 315 Physiological Foundations of Movement. (3)**

*fall and spring*

Studies human movement with emphasis on physiological function of the body in response to physical activity and fitness training. Lecture, lab. Fee. Prerequisites: BIO 201, 202.

### **E EXW 320 Program Development and Leadership. (3)**

*fall and spring*

Principles of planning, organizing, promoting, and leading fitness and wellness programs. Prerequisites: COM 225; Exercise and Wellness major.

### **E EXW 325 Fitness for Life. (3)**

*fall, spring, summer*

Physical fitness and benefits of exercise with emphasis on self-evaluation and personalized program planning for a lifetime. Not open to students who have credit for EXW 215 or 301.

### **E EXW 330 Kinesiological Foundations of Movement. (3)**

*fall and spring*

Studies and considers human movement with emphasis on kinesiology principles and their application to movement and fitness. Lecture, lab. Prerequisites: BIO 201, 202.

### **E EXW 342 Health Behavior Change. (3)**

*fall, spring, summer*

Examines major theories of health behavioral change. Develops intervention strategies and techniques employed to facilitate health behavioral change. Prerequisite: PGS 101.

### **E EXW 346 Health Promotion and Program Evaluation. (3)**

*spring*

Introduces and applies theory-based concepts and methods of health promotion and program evaluation. Lecture, online study. Prerequisite: EXW 342. Pre- or corequisites: EXW 300, 310.

### **E EXW 350 Substance Abuse and Addictive Behavior. (3)**

*spring*

Studies addictive substances, their pharmacology and effects. Psychosocial risk factors for, and consequences of, substance abuse. Lecture, discussion, individual and group study.

### **E EXW 380 Body Image and Wellness. (3)**

*fall and spring*

Explores body image in American culture from physical, psychological, historical, and societal perspectives. Prerequisites: NTR 241; PGS 101.

### **E EXW 400 Stress Management for Wellness. (3)**

*fall, spring, summer*

Examines the stress response and management from a behavioral perspective as it pertains to individuals or groups. Prerequisite: PGS 101.

### **E EXW 420 Exercise Testing. (3)**

*fall and spring*

Theoretical basis and practical application of pre-exercise screening, exercise testing, estimates of energy expenditure, and interpretation of results. Lecture, lab. Fee. Prerequisites: EXW 315; current CPR certification.

### **E EXW 425 Exercise Prescription. (3)**

*fall and spring*

Theoretical basis for and application of general principles of exercise prescription to various ages, fitness levels, and health states.

Prerequisites: EXW 320, 330. Pre- or corequisite: EXW 420.

### **E EXW 442 Physical Activity in Health and Disease. (3)**

*spring*

Examines the role of physical activity and fitness in the development of morbidity and mortality throughout the human life span.

Prerequisite: EXW 315.

*General Studies: L*

### **E EXW 444 Epidemiology. (3)**

*fall*

Introduces epidemiological concepts and research literature, including physical activity, nutrition, tobacco, alcohol, injury prevention, and safe sex. Prerequisites: EXW 300, 310, 320. Pre- or corequisites: EXW 325, 350.

### **E EXW 450 Cultural and Social Issues in Exercise and Wellness. (3)**

*fall and spring*

Examines contemporary sociocultural issues and social determinants of health and physical activity. Focuses on health disparities, obesity, and social stressors. Prerequisites: EXW 300; PGS 101.

*General Studies: SB, C*

### **E EXW 460 Resistance Training Application and Theory. (3)**

*fall*

Fosters critical thinking as it applies to resistance training theory. Pre- or corequisite: EXW 315.

### **E EXW 484 Exercise and Wellness Internship. (6)**

*fall, spring, summer*

Supervised practicum experience in approved exercise and wellness/health promotion agencies. Field work. Prerequisites: EXW 315, 320, 420. Pre- or corequisite: EXW 425.

### **E EXW 498 Pro-Seminar. (1–7)**

*selected semesters*

Topics may include the following:

- Spa Management I. (2)

*fall and spring*

Provides an overview of the spa industry, programs and services typically found in different types of spas, operational systems and procedures, spa equipment and facility issues, financial issues, human resource issues, marketing for spas, computer software for spa operations, and other key administrative competencies specific to the spa industry.

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access [www.asu.edu/catalog](http://www.asu.edu/catalog) on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.

**Faculty of Human Health Studies**

[www.poly.asu.edu/ecollege/humanhealth](http://www.poly.asu.edu/ecollege/humanhealth)

480/727-1333

WANER Third Floor

William L. Mermis, Faculty Head

**HUMAN HEALTH STUDIES—BA AND BS**

The baccalaureate degrees in human health studies examine the multiple dimensions of human health, including psychological, social, biological, spiritual, economic, and emotional dimensions. Different perspectives on health and health care are examined as well as how those perspectives influence changes in belief structures and behavior. Students engage in a critical examination of the alternative approaches to health care and health promotion.

The degrees in human health studies provide students with the general knowledge and intellectual competencies to pursue many different careers and graduate studies in human services or health professions. Students planning to seek admission to medical school or other postbaccalaureate practitioner training that requires an extensive background in mathematics and science benefit from the BS program.

**Graduation Requirements**

To graduate with either a BA or a BS in Human Health Studies, students must complete a minimum of 120 semester hours (45 upper-division hours), including the university General Studies requirements. Both the BA and BS degree programs require 45 semester hours of major requirements consisting of a 15-semester-hour core of Human Health Studies courses, a 12-semester-hour concentration, and 18 semester hours of related course work.

The difference between the BA and BS programs lies in the mathematics and science requirements. Both BA and BS students must take one semester of general biology with a lab and two semesters of human anatomy and physiology with labs. The BS program requires additional mathematics courses (through brief calculus) and the following science courses:

CHM 113 General Chemistry I <i>SQ</i> .....	4
CHM 116 General Chemistry II <i>SQ</i> .....	4

CHM 233 General Organic Chemistry I.....	3
CHM 234 General Organic Chemistry II.....	3
CHM 237 General Organic Chemistry Laboratory I.....	1
CHM 238 General Organic Chemistry Laboratory II.....	1
PHY 111 General Physics <i>SQ</i> *.....	3
PHY 112 General Physics <i>SQ</i> *.....	3
PHY 113 General Physics Laboratory <i>SQ</i> *.....	1
PHY 114 General Physics Laboratory <i>SQ</i> *.....	1

\* Both PHY 111 and 113 or 112 and 114 must be taken to secure *SQ* credit.

**HUMAN HEALTH STUDIES (HHS)**

**E HHS 100 Introduction to Holistic Health. (3)**

*selected semesters*

Studies holistic health in a bio-psycho-socio-cultural context for health promotion and wellness.

**E HHS 194 Special Topics. (1–4)**

*selected semesters*

**E HHS 294 Special Topics. (1–4)**

*selected semesters*

**E HHS 300 Overview of Complementary Health Systems. (3)**

*selected semesters*

Identifies and describes major approaches to complementary health models in the context of holistic health. Prerequisite: HHS 100.

**E HHS 302 Evidence-Based Complementary Health Modalities. (3)**

*selected semesters*

Investigates complementary practices in the context of scholarly knowledge and standards for health care. Prerequisite: HHS 100.

**E HHS 394 Special Topics. (1–4)**

*selected semesters*

**E HHS 400 Community-Based Complementary Health Services. (3)**

*selected semesters*

Examines recent developments in community-based health and human services from a holistic perspective. Lecture, service learning. Prerequisite: HHS 100.

**E HHS 402 Work, Health, and the Family. (3)**

*selected semesters*

Examines issues and programs in the contemporary workplace and society. Future directions for the family and its health.

**E HHS 403 Community Mental Health and Human Services. (3)**

*selected semesters*

Examines concepts, issues, and programs in community mental health and the delivery of human services.

**E HHS 405 Seminar in Holistic Health. (3)**

*selected semesters*

Integrates concepts and issues in holistic health within philosophical, historical, political, economic, and cultural frameworks. Prerequisite: HHS 100.

**E HHS 494 Special Topics. (1–4)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.



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## Faculty of Multimedia Writing and Technical Communication

[www.poly.asu.edu/ecollege/multimedia](http://www.poly.asu.edu/ecollege/multimedia)

480/727-1287

SUTON Third Floor

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**Barry M. Maid, Faculty Head**

**Professor:** Maid

**Associate Professor:** Stone

**Lecturer:** D'Angelo

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### MULTIMEDIA WRITING AND TECHNICAL COMMUNICATION—BS

In the Multimedia Writing and Technical Communication program, students learn how to produce, design, and manage information using traditional and leading edge technologies. Students

1. learn to communicate, orally and in writing, across audiences and cultures;
2. become aware of issues of ethics in technical communications;
3. gain an awareness of the global nature of technical communication—culturally and economically—and develop the ability to evaluate print, oral, and electronic sources;
4. gain an understanding of appropriate technical genres and learn to demonstrate technical editing skills in all work; and
5. become able to incorporate appropriate visual elements and design in written documents and oral presentations and to work in appropriate media.

The program serves students who wish to pursue careers as technical writers, technical editors, Web page and intranet page designers, multimedia designers, desktop publishers, publications managers, and information designers.

### GRADUATION REQUIREMENTS

To graduate with a BS degree in Multimedia Writing and Technical Communication, students must complete a minimum of 120 semester hours, including university graduation requirements and the requirements of the major.

<b>Multimedia Writing and Technical Communication Core</b>	
TWC 301 General Principles of Multimedia Writing <i>L</i> .....	3
TWC 401 Principles of Technical Communication <i>L</i> .....	3
TWC 411 Principles of Visual Communication <i>L</i> .....	3
TWC 421 Principles of Writing with Technology <i>L</i> .....	3
TWC 431 Principles of Technical Editing <i>L</i> .....	3
TWC 490 Capstone .....	3
Total .....	18

**Major Electives.** Fifteen semester hours are considered electives in the major (TWC). At least six of which need to be in genre courses, such as TWC 443 Proposal Writing or TWC 447 Business Reports. An Internship (TWC 484) or supervised work experience is strongly recommended.

For information about program requirements and courses, access the Web at [www.poly.asu.edu/ecollege](http://www.poly.asu.edu/ecollege), or call an East College advisor at 480/727-1333.

**Related Area.** Students select a related area consisting of 12 semester hours of study in one other discipline. At least nine of these 12 semester hours must be in the upper division. Suggested disciplines might be, but are not limited to, applied psychology, business administration, or computer graphics. Students, with the help of an advisor, may also develop a coherent interdisciplinary related area.

### BACHELOR OF APPLIED SCIENCE—BAS

A Bachelor of Applied Science is also offered with a concentration in multimedia writing and technical communication. The BAS degree is a “capstone” degree for the Associate of Applied Science degree. The BAS degree exposes students to advanced concepts and diverse critical thinking skills that prepare them for future career opportunities and professional advancement.

**Admission.** Admission to the BAS degree program is restricted to students holding an AAS degree or equivalent from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 for nonresident applicants.

**Degree Requirements.** In addition to the AAS degree, the BAS in Applied Science through East College consists of 60 semester hours of upper-division (300-level and above) courses, with 30 semester hours in residence.

Assignable credit .....	6
BAS core .....	15
General Studies .....	19
MWTC concentration .....	20
Total .....	60

**General Studies Curriculum.** The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L .....	3
MA .....	3
HU .....	3
HU or SB .....	3
SB .....	3
SG .....	4
Total .....	19

**Assignable Credit.** Assignable credit offers students the flexibility within the curriculum to take the prerequisite courses needed for success. The courses (six semester hours) are determined by the student and an advisor.

**BAS Core.** The area core (15 semester hours) is focused on management and organization, professional communication, qualitative analysis, and computer competency.

**Multimedia Writing and Technical Communication Concentration.** In consultation with an advisor, students select 20 semester hours of upper-division TWC courses.

**CERTIFICATE PROGRAMS**

An undergraduate Multimedia Writing and Technical Communication Certificate is available and requires 18 semester hours.

For students who have already completed a baccalaureate degree, a Postbaccalaureate Certificate in Multimedia Writing and Technical Communication is available that also requires 18 semester hours.

**Postbaccalaureate Certificate in Multimedia Writing and Technical Communication.** The postbaccalaureate certificate in Multimedia Writing and Technical Communication requires the following courses:

TWC 501 Principles of Technical Communication .....	3
Two of the following courses .....	6
TWC 511 Principles of Visual Communication (3)	
TWC 521 Principles of Writing with Technology (3)	
TWC 531 Principles of Technical Editing (3)	
Three 500-level TWC courses at least two of which must be genre courses, such as TWC 543 Proposal Writing or TWC 547 Business Reports .....	9
Total .....	18

For more information about both certificate programs, call an East College advisor at 480/727-1333, or access the Web site at [www.poly.asu.edu/ecollege/multimedia](http://www.poly.asu.edu/ecollege/multimedia).

**BIS CONCENTRATION**

A concentration in multimedia writing and technical communication is available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see “School of Interdisciplinary Studies,” page 139.

**MULTIMEDIA WRITING AND TECHNICAL COMMUNICATION (TWC)**

**E TWC 194 Special Topics. (1–4)**  
*selected semesters*

**E TWC 200 Impact of Communications Technology on Society. (3)**  
*fall and spring*  
Organizational issues and development of technical communication. Activities include research, evaluations, and presentation of oral arguments in support of positions. Prerequisites: both ENG 101 and 102 or only ENG 105.  
*General Studies: L*

**E TWC 301 General Principles of Multimedia Writing. (3)**  
*fall and spring*  
Introduces writing in a variety of media, understanding the consequences of integrating media, and effective editing techniques. Prerequisite: First-Year Composition.  
*General Studies: L*

**E TWC 351 Technical Writing and Editing. (3)**  
*fall and spring*  
Effective style, format, and organization of technical material; editing principles and practices; copyediting versus substantive editing; and document management. Prerequisite: ENG 102.

**E TWC 400 Technical Communications. (3)**  
*fall, spring, summer*  
Planning and preparing technical publications and oral presentations based on directed library research related to current technical topics. Prerequisites: completion of first-year English requirements; a General Studies L course; senior standing with a major in College of Technology and Applied Sciences.  
*General Studies: L*

**E TWC 401 Principles of Technical Communication. (3)**  
*fall and spring*  
Basic information design principles to produce effective written, oral, and electronic technical communication. Understanding of rhetorical and audience analysis. Pre- or corequisite: TWC 301.  
*General Studies: L*

**E TWC 403 Writing for Professional Publication. (3)**  
*selected semesters*  
Analyzes the market and examines the publication process, including the roles of the author, editor, and reviewer. Pre- or corequisite: TWC 401.

**E TWC 411 Principles of Visual Communication. (3)**  
*fall and spring*  
Basic principles of visual communication in print and electronic media. Understanding graphic and document design, including typography and color. Pre- or corequisite: TWC 401.  
*General Studies: L*

**E TWC 421 Principles of Writing with Technology. (3)**  
*fall and spring*  
Understanding historical and social impact of technology on writing, with emphasis on multimedia design, computer-mediated communication, and hypertext. Pre- or corequisite: TWC 401.  
*General Studies: L*

**E TWC 431 Principles of Technical Editing. (3)**  
*fall and spring*  
Basic principles of technical editing (for print and electronic media), including copyediting, reviews, standards, style, and project management. Pre- or corequisite: TWC 401.  
*General Studies: L*

**E TWC 443 Proposal Writing. (3)**  
*once a year*  
Develops persuasive strategies and themes for researching and writing professional proposals. Pre- or corequisite: TWC 401.

**E TWC 444 Manual and Instructional Writing. (3)**  
*once a year*  
Design and development of a user manual, writing instructions, improving graphics and page design, and usability testing. Pre- or corequisite: TWC 401.

**E TWC 445 Computer Documentation. (3)**  
*once a year*  
Introduces writing documentation for the computer industry. Pre- or corequisite: TWC 401.

**E TWC 446 Technical and Scientific Reports. (3)**  
*once a year*  
Introduces strategies, formats, and techniques of presenting information to technical and scientific audiences. Pre- or corequisite: TWC 401.  
*General Studies: L*

**E TWC 447 Business Reports. (3)**  
*once a year*  
Introduces strategies, formats, and techniques of presenting information to business and other workplace audiences. Pre- or corequisite: TWC 401.  
*General Studies: L*

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L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

## EAST COLLEGE

### **ETWC 451 Copyright and Intellectual Property in the Electronic Age. (3)**

*fall*

Explores issues related to copyright and intellectual property laws, with emphasis on electronic environment. Credit is allowed for only TWC 451 or 551. Prerequisite: TWC 301 or instructor approval.

### **ETWC 452 Information in the Digital Age. (3)**

*spring*

Explores the creation, organization, dissemination, and use of information; the impact of technologies; and surrounding economic, legal, and social issues. Prerequisite: TWC 301 or instructor approval.

### **ETWC 453 Information and Communications Technology in American History. (3)**

*selected semesters*

Explores the historical development of information and related technologies in the United States from colonial times to the present. Credit is allowed for only TWC 453 or 553. Lecture, Internet.

### **ETWC 454 Information Technology and Culture. (3)**

*fall, spring, selected summers*

Explores the historical impact and intersection of communications technology and culture in America. Credit is allowed for only TWC 454 or 554. Lecture, Internet.

*General Studies: C*

### **ETWC 484 Internship. (3)**

*fall and spring*

Applies classroom work in a supervised workplace environment. Pre- or corequisite: TWC 411 or 421 or 431.

### **ETWC 490 Capstone. (3)**

*fall and spring*

Development of a professional portfolio, creation of a "culminating document," and synthesis of undergraduate experience. Prerequisite: instructor approval.

### **ETWC 494 Special Topics. (1–4)**

*selected semesters*

### **ETWC 501 Principles of Technical Communication. (3)**

*fall and spring*

Basic information design principles to produce effective written, oral, and electronic technical communication. Understanding of rhetorical and audience analysis. Pre- or corequisite: graduate standing.

### **ETWC 503 Writing for Professional Publication. (3)**

*selected semesters*

Analyzes the market and examines the publication process, including the roles of the author, editor, and reviewer. Pre- or corequisite: TWC 501.

### **ETWC 511 Principles of Visual Communication. (3)**

*fall and spring*

Basic principles of visual communication in print and electronic media. Understanding graphic and document design, including typography and color. Pre- or corequisite: TWC 501.

### **ETWC 521 Principles of Writing with Technology. (3)**

*fall and spring*

Understanding historical and social impact of technology on writing, with emphasis on multimedia design, computer-mediated communication, and hypertext. Pre- or corequisite: TWC 501.

### **ETWC 531 Principles of Technical Editing. (3)**

*fall and spring*

Basic principles of technical editing for print and electronic media, including copyediting, reviews, standards, style, and project management. Pre- or corequisite: TWC 501.

### **ETWC 543 Proposal Writing. (3)**

*once a year*

Develops persuasive strategies and themes for researching and writing professional proposals. Pre- or corequisite: TWC 501.

### **ETWC 544 Manual and Instructional Writing. (3)**

*once a year*

Design and development of a user manual, writing instructions, improving graphics and page design, and usability testing. Pre- or corequisite: TWC 501.

### **ETWC 545 Computer Documentation. (3)**

*once a year*

Introduces writing documentation for the computer industry. Pre- or corequisite: TWC 501.

### **ETWC 546 Technical and Scientific Reports. (3)**

*once a year*

Introduces strategies, formats, and techniques of presenting information to technical and scientific audiences. Pre- or corequisite: TWC 501.

### **ETWC 547 Business Reports. (3)**

*once a year*

Introduces strategies, formats, and techniques of presenting information to business and other workplace audiences. Pre- or corequisite: TWC 501.

### **ETWC 551 Copyright and Intellectual Property in the Electronic Age. (3)**

*fall*

Explores issues related to copyright and intellectual property laws, with emphasis on electronic environment. Credit is allowed for only TWC 551 or 451.

### **ETWC 552 Information in the Digital Age. (3)**

*spring*

Explores the creation, organization, dissemination, and use of information; the impact of technologies; and surrounding economic, legal, and social issues. Credit is allowed for only TWC 552 or 452.

### **ETWC 553 Information and Communications Technology in American History. (3)**

*selected semesters*

Explores the historical development of information and related technologies in the United States from colonial times to the present. Credit is allowed for only TWC 553 or 453. Lecture, Internet.

### **ETWC 554 Information Technology and Culture. (3)**

*fall, spring, selected summers*

Explores the historical impact and intersection of communications technology and culture in America. Credit is allowed for only TWC 554 or 454. Lecture, Internet.

### **ETWC 584 Internship. (3)**

*fall and spring*

Applies classroom work in a supervised workplace environment. Pre- or corequisites: TWC 511, 521, 531.

### **ETWC 598 Special Topics. (1–4)**

*selected semesters*

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

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## Department of Nutrition

[www.poly.asu.edu/ecollege/nutrition](http://www.poly.asu.edu/ecollege/nutrition)

480/727-1728

HSC 1386

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Linda A. Vaughan, Chair

**Professors:** Johnston, Vaughan

**Associate Professor:** Hampl

**Assistant Professors:** Hutchins, Winham, Woolf

**Lecturers:** Dixon, Hall, Shepard

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## NUTRITION—BS

The BS degree in Nutrition offers four concentrations: dietetics, food and nutrition management, human nutrition, and nutrition communication.

The dietetics concentration provides students with a comprehensive range of nutrition, foods, and science courses

that meet the academic (didactic) requirements necessary to become a registered dietitian. This concentration has been granted full accreditation as a Didactic Program in Dietetics (DPD) by the Commission on Accreditation for Dietetics Education of the American Dietetic Association. Graduates of a DPD may apply for Dietetic Internships to establish eligibility to write the Dietetic Registration examination.

The food and nutrition management concentration provides a number of nutrition, foods, and business courses and is offered to students with an interest in food production, nutrition program management, and food/nutrition marketing.

The human nutrition concentration provides a sound foundation in the basic sciences and nutrition, but no food service courses are required. This program is often used by students who, while not seeking the credential of Registered Dietitian, are working toward a career in nutrition research or completing a premedical/pre dental program of study.

The nutrition communication concentration provides a strong core of nutrition and communication courses in conjunction with selected science and food related courses. This program is ideal for students with an interest in freelance writing or public relations.

**Accreditation.** The BS degree in Nutrition with a concentration in dietetics has been granted full accreditation as a Didactic Program in Dietetics (DPD) by the Commission on Accreditation for Dietetics Education of the American Dietetic Association. For more information, call 312/899-0040, or write

COMMISSION ON ACCREDITATION FOR  
DIETETICS EDUCATION  
AMERICAN DIETETIC ASSOCIATION  
120 S RIVERSIDE PLAZA SUITE 2000  
CHICAGO IL 60606-6995

**Dietetics Concentration.** The following NTR courses are required of all students in the dietetics concentration:

NTR 142 Applied Food Principles .....	3
NTR 150 Introduction to the Professions in Nutrition and Dietetics.....	1
NTR 241 Human Nutrition.....	3
NTR 340 Applications in Human Nutrition.....	3
NTR 341 Introduction to Planning Therapeutic Diets.....	3
NTR 343 Food Service Purchasing.....	3
NTR 344 Nutrition Services Management <i>L</i> .....	3
NTR 350 Nutrition Counseling <i>SB</i> .....	3
NTR 400 Preprofessional Preparation in Dietetics.....	3
NTR 440 Advanced Human Nutrition I.....	3
NTR 441 Advanced Human Nutrition II.....	3
NTR 444 Medical Nutrition Therapy.....	3
NTR 445 Management of Food Service Systems.....	3
NTR 446 Human Nutrition Assessment Lecture/Laboratory.....	3
NTR 448 Community Nutrition <i>L</i> .....	3
Total .....	43

In addition to the required NTR courses, the following related courses are required to complete the academic requirements of the Didactic Program in dietetics:

BCH 361 Principles of Biochemistry.....	3
BCH 367 Elementary Biochemistry Laboratory.....	1
BIO 201 Human Anatomy and Physiology I <i>SG</i> .....	4

BIO 202 Human Anatomy and Physiology II.....	4
CHM 113 General Chemistry I <i>SQ</i> .....	4
CHM 116 General Chemistry II <i>SQ</i> .....	4
CHM 231 Elementary Organic Chemistry <i>SQ</i> <sup>1</sup> .....	3
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> <sup>1</sup> .....	1
MIC 205 Microbiology <i>SG</i> <sup>2</sup> .....	3
MIC 206 Microbiology Laboratory <i>SG</i> <sup>2</sup> .....	1
Statistics course.....	3
Technical writing course.....	3
Total .....	34

- <sup>1</sup> Both CHM 231 and 235 must be taken to secure SQ credit.
- <sup>2</sup> Both MIC 205 and 206 must be taken to secure SG credit.

Additional supporting courses in the social sciences are required for completion of the DPD and must be selected in consultation with the Nutrition academic advisor.

**Food and Nutrition Management Concentration.** The following NTR courses are required of all students in the food and nutrition management concentration:

NTR 100 Introductory Nutrition.....	3
or NTR 241 Human Nutrition (3)	
NTR 142 Applied Food Principles .....	3
NTR 300 Computer Applications in Nutrition <i>CS</i> .....	3
NTR 343 Food Service Purchasing.....	3
NTR 344 Nutrition Services Management <i>L</i> .....	3
NTR 345 Development of Healthy Cuisines.....	3
NTR 351 Nutrition and Health Communications.....	3
NTR 401 Professional Practice in Food Service Management.....	3
NTR 445 Management of Food Service Systems.....	3
Total .....	27

Three more semester hours from the Department of Nutrition are required to complete this concentration. A maximum of three semester hours of Independent Study may be used to satisfy this requirement. Students select these courses in consultation with the Nutrition academic advisor.

In addition to the required NTR courses, the following related courses are required to complete the academic requirements of this concentration:

CHM 101 Introductory Chemistry <i>SQ</i> .....	4
MIC 205 Microbiology <i>SG</i> <sup>1</sup> .....	3
MIC 206 Microbiology Laboratory <i>SG</i> <sup>1</sup> .....	1
Business or technical writing course.....	3
Management (AGB 310; MGT 300, 380, or 394; WPC 380).....	3
Marketing (AGB 320; MKT 300 or 394; WPC 382).....	3
Other agribusiness or business courses <sup>2</sup> .....	6
Total .....	23

- <sup>1</sup> Both MIC 205 and 206 must be taken to secure SG credit.
- <sup>2</sup> Courses taken to fulfill the final six-credit business requirement should be taken from the following prefixes: ACC, AGB, BUS, CIS, CSE, ECN, FIN, IBS, MGT, MKT, QBA, SCM, TWC, and WPC. Students select these courses in consultation with the Nutrition academic advisor.

**L** literacy and critical inquiry / **MA** mathematics / **CS** computer/statistics/quantitative applications / **HU** humanities and fine arts / **SB** social and behavioral sciences / **SG** natural science—general core courses / **SQ** natural science—quantitative / **C** cultural diversity in the United States / **G** global / **H** historical / See "General Studies," page 93.

## EAST COLLEGE

**Human Nutrition Concentration.** The following NTR courses are required of all students in the human nutrition concentration:

NTR 142 Applied Food Principles .....	3
NTR 241 Human Nutrition .....	3
NTR 340 Applications in Human Nutrition.....	3
NTR 341 Introduction to Planning Therapeutic Diets .....	3
NTR 440 Advanced Human Nutrition I.....	3
NTR 441 Advanced Human Nutrition II .....	3
NTR 444 Medical Nutrition Therapy.....	3
NTR 446 Human Nutrition Assessment Lecture/Laboratory .....	3
Total .....	24

An additional six semester hours from the Department of Nutrition are required to complete this concentration. A maximum of three semester hours of Independent Study may be used to satisfy this requirement. Students select these courses in consultation with the Nutrition academic advisor.

In addition to the required NTR courses, the following related courses are required in order to complete the academic requirements of this concentration:

BCH 361 Principles of Biochemistry.....	3
BCH 367 Elementary Biochemistry Laboratory.....	1
BIO 201 Human Anatomy and Physiology I <i>SG</i> .....	4
BIO 202 Human Anatomy and Physiology II.....	4
CHM 113 General Chemistry I <i>SQ</i> .....	4
CHM 116 General Chemistry II <i>SQ</i> .....	4
CHM 231 Elementary Organic Chemistry <i>SQ</i> <sup>1</sup> .....	3
CHM 235 Elementary Organic Chemistry Laboratory <i>SQ</i> <sup>1</sup> .....	1
MIC 205 Microbiology <i>SG</i> <sup>2</sup> .....	3
MIC 206 Microbiology Laboratory <i>SG</i> <sup>2</sup> .....	1
Total .....	28

<sup>1</sup> Both CHM 231 and 235 must be taken to secure *SQ* credit.

<sup>2</sup> Both MIC 205 and 206 must be taken to secure *SG* credit.

**Nutrition Communication Concentration.** The following NTR courses are required of all students in the nutrition communication concentration:

NTR 100 Introductory Nutrition.....	3
or NTR 241 Human Nutrition (3)	
NTR 142 Applied Food Principles .....	3
NTR 300 Computer Applications in Nutrition <i>CS</i> .....	3
NTR 345 Development of Healthy Cuisines .....	3
NTR 348 Cultural Aspects of Food <i>SB, C</i> .....	3
NTR 351 Nutrition and Health Communications .....	3
NTR 400 Preprofessional Preparation in Dietetics.....	3
or NTR 401 Professional Practice in Food Service Management (3)	
NTR 448 Community Nutrition <i>L</i> .....	3
NTR 450 Nutrition in the Life Cycle I <i>SB</i> .....	3
or NTR 451 Nutrition in the Life Cycle II (3)	
Total .....	27

In addition to the required NTR courses, the following related courses are required to complete the academic requirements of this concentration:

### Mass Communication Core

18 credits required, nine must be upper-division, nine must be in residence at ASU:

MCO 110 Introduction to Mass Communication <i>SB</i> .....	3
or MCO 120 Media and Society <i>SB</i> (3)	
JMC 201 Journalism Newswriting <i>L</i> .....	3
or JMC 202 Radio-Television Writing <i>L</i> (3)	
JMC 270 Public Relations Techniques .....	3
Total .....	9

At least three more courses must be completed from the following list for a total of nine credits:

JMC 425 Online Media .....	3
JMC 445 Science Writing.....	3
MCO 418 History of Mass Communication <i>SB, H</i> .....	3
MCO 430 International Mass Communication <i>G</i> .....	3
MCO 435 Emerging Media Technologies .....	3
MCO 440 Applied Media Research.....	3
MCO 450 Visual Communication <i>HU</i> .....	3
MCO 456 Political Communication <i>SB</i> .....	3
MCO 460 Race, Gender, and Media <i>C</i> .....	3
MCO 494 Special Topics .....	3

### Additional Requirements

BIO 201 Human Anatomy and Physiology I <i>SG</i> .....	4
BIO 202 Human Anatomy and Physiology II.....	4
CHM 101 Introductory Chemistry <i>SQ</i> .....	4
ENG 301 Writing for the Professions <i>L</i> .....	4
Statistics (see advisor for a list of courses).....	3

## MINORS

The faculty of the Department of Nutrition also offers minors in Food and Nutrition Management and Human Nutrition, each requiring 18 semester hours. At least 12 of the 18 must be in upper-division courses.

**Food and Nutrition Management.** The minor requires that students take the following courses:

NTR 100 Introductory Nutrition.....	3
or NTR 241 Human Nutrition (3)	
NTR 142 Applied Food Principles .....	3
NTR 300 Computer Applications in Nutrition <i>CS</i> .....	3
NTR 343 Food Service Purchasing.....	3
NTR 344 Nutrition Services Management <i>L</i> .....	3
NTR 445 Management of Food Service Systems.....	3
Total .....	18

**Human Nutrition.** The minor requires that students take the following courses:

NTR 241 Human Nutrition .....	3
NTR 340 Applications in Human Nutrition.....	3
NTR 341 Introduction to Planning Therapeutic Diets.....	3
NTR 440 Advanced Human Nutrition I.....	3
NTR 441 Advanced Human Nutrition II .....	3
NTR 444 Medical Nutrition Therapy.....	3
Total .....	18

Additional upper-division (or graduate) courses may be selected from among the following:

NTR 346 Sports Nutrition.....	3
NTR 348 Cultural Aspects of Food <i>SB, C</i> .....	3
NTR 350 Nutrition Counseling <i>SB</i> .....	3
NTR 351 Nutrition and Health Communications .....	3
NTR 446 Human Nutrition Assessment Lecture/Laboratory .....	3
NTR 448 Community Nutrition <i>L</i> .....	3
NTR 450 Nutrition in the Life Cycle I <i>SB</i> .....	3
NTR 451 Nutrition in the Life Cycle II .....	3

**BIS CONCENTRATIONS**

Concentrations in (1) food and nutrition management and (2) human nutrition are available under the Bachelor of Interdisciplinary Studies (BIS) degree, a program intended for the student who has academic interests that might not be satisfied with existing majors. Building on two academic concentrations (or one double concentration) and an interdisciplinary core, students in the BIS program take active roles in creating their educational plans and defining their career goals. For more information, see “School of Interdisciplinary Studies,” page 139.

**APPLIED SCIENCE—BAS**

**Food Service Management Concentration.** The BAS degree with a concentration in food service management is designed to complement and enhance the educational preparation of students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. The concentration is particularly designed for students holding an AAS degree in culinary or hospitality science. The degree prepares students for careers in food production, service, management, and marketing. With additional education and/or professional training, students may also become credentialed as certified dietary managers, school food service and nutrition specialists, or registered sanitarians.

**Admission.** Admission to the BAS degree program is restricted to students holding an AAS degree from a regionally accredited U.S. postsecondary educational institution. A GPA of 2.00 or higher is required for all resident applicants and a 2.50 is required for nonresident applicants.

**Degree Requirements.** The BAS degree consists of 60 semester hours of upper-division (300 level and above) courses, with 30 hours in residence. A total of 120 semester hours are required for graduation.

AAS degree .....	60
Assignable credit.....	6
BAS core .....	15
General Studies .....	19
Concentration .....	20
Total .....	120

**General Studies Curriculum.** The BAS curriculum builds on the general education content of the AAS degree. Additional General Studies (L, CS, and awareness areas) are met with courses in the core or concentration. General Studies courses focus on contextual learning.

L .....	3
MA .....	3
HU .....	3
HU/SB .....	3
SB .....	3
SG .....	4
Total .....	19

**Required Core Courses**

NTR 300 Computer Applications in Nutrition CS .....	3
NTR 343 Food Service Purchasing.....	3
NTR 344 Nutrition Services Management L .....	3
NTR 345 Development of Healthy Cuisines .....	3
NTR 348 Cultural Aspects of Food SB, C .....	3

NTR 401 Professional Practice in Food Service Management.....	3
NTR 445 Management of Food Service Systems.....	3
Marketing course .....	3
NTR electives.....	6
Statistics course.....	3
Technical communications course .....	3
Total .....	36

**Assignable Credit.** Assignable credit offers students the flexibility within the curriculum to take the prerequisite courses needed for success. It also allows students to take additional technical electives. The courses are determined by the student and the advisor.

**NUTRITION (NTR)**

**E NTR 100 Introductory Nutrition. (3)**

*fall, spring, summer*

Basic concepts of human nutrition. Recent controversies in nutrition and how food choices affect personal health.

**E NTR 142 Applied Food Principles. (3)**

*fall and spring*

Applied scientific principles of food preparation and production. 2 hours lecture, 3 hours lab. Fee.

**E NTR 150 Introduction to the Professions in Nutrition and Dietetics. (1)**

*fall and spring*

Introduces the professions of nutrition and dietetics; their history, practice, and future; credentials, ethics, and standards of practice.

**E NTR 241 Human Nutrition. (3)**

*fall, spring, summer*

Principles of human nutrition. Emphasizes nutrient metabolism and the relationships between diet and disease. Prerequisite: CHM 101 (or its equivalent).

**E NTR 300 Computer Applications in Nutrition. (3)**

*spring*

Introduces nutrition and food software, including dietary assessment and analysis, food inventory and control, and telecommunications. Integrated lecture/lab. Prerequisites: NTR 100 (or 241), 341 strongly recommended; basic computer literacy.

*General Studies: CS*

**E NTR 340 Applications in Human Nutrition. (3)**

*spring*

Applications of nutrient metabolism through case studies and product evaluations; special topics in human nutrition. Prerequisites: BIO 201; NTR 241. Corequisite: BIO 202.

**E NTR 341 Introduction to Planning Therapeutic Diets. (3)**

*fall and spring*

Cultural, health, and economic aspects of planning therapeutic diets. Assessments of food and diet composition. Reviews common therapeutic diets. Credit is allowed for only NTR 341 or 345. Fee. Prerequisite: NTR 100 or 241 (or their equivalents).

**E NTR 343 Food Service Purchasing. (3)**

*fall*

Introduces purchasing systems, bid processes, receiving and storage procedures, and regulatory agencies involved in the food service industry. Prerequisite: NTR 142.

**E NTR 344 Nutrition Services Management. (3)**

*fall and spring*

Organization, administration, and management of food and nutrition services in hospitals and other institutions. Possible field trips. Prerequisite: NTR 100 or 241 (or its equivalent).

*General Studies: L*

L literacy and critical inquiry / MA mathematics / CS computer/statistics/ quantitative applications / HU humanities and fine arts / SB social and behavioral sciences / SG natural science—general core courses / SQ natural science—quantitative / C cultural diversity in the United States / G global / H historical / See “General Studies,” page 93.

## EAST COLLEGE

### **E NTR 345 Development of Healthy Cuisines. (3)**

*fall*

Principles and applications of nutrition and medical nutrition therapy; development of healthy cuisines in health and disease states. Credit is allowed for only NTR 345 or 341. Prerequisite: NTR 100 or 241 or instructor approval.

### **E NTR 346 Sports Nutrition. (3)**

*fall and summer*

Nutritional needs of recreational and elite athletes; energy balance; nutrient metabolism during activity; fluid-electrolyte regulation; evaluation of ergogenic supplements. Prerequisites: BIO 202; NTR 241.

### **E NTR 348 Cultural Aspects of Food. (3)**

*spring and summer*

Origins, development, and diversity of food preferences and dietary habits; food patterns and attitudes of global populations and U.S. immigrants. Prerequisite: NTR 100 or 241 (or its equivalent).

*General Studies: SB, C*

### **E NTR 350 Nutrition Counseling. (3)**

*spring*

Counseling techniques in nutrition; interpersonal and communication skills in clinical and community sites; nutrition education for individuals and populations. Integrated lecture/lab. Prerequisites: NTR 100 (or 241) and 341 (or their equivalents).

*General Studies: SB*

### **E NTR 351 Nutrition and Health Communications. (3)**

*fall*

Approaches of nutrition and health communications; development of nutrition and health communication materials for selected target audiences. Prerequisite: NTR 100 or 241.

### **E NTR 400 Preprofessional Preparation in Dietetics. (3)**

*fall and spring*

Applies academic knowledge in field practicum; aspects of professional development. Lecture, practicum. Prerequisites: NTR 341, 440 (or 441 or 444); senior standing in dietetics or human nutrition.

### **E NTR 401 Professional Practice in Food Service Management. (3)**

*spring*

Applies academic knowledge in food service management to field practicum; develops practical skills in planning, purchasing, production, management. Lecture, practicum. Prerequisites: NTR 343; senior standing in food and nutrition management. Pre- or corequisite: NTR 344.

### **E NTR 440 Advanced Human Nutrition I. (3)**

*fall*

Metabolic reactions and interrelationships of vitamins, minerals, and water. Prerequisites: BIO 201; NTR 241. Corequisite: BIO 202.

### **E NTR 441 Advanced Human Nutrition II. (3)**

*spring*

Metabolic reactions and interrelationships of carbohydrate, lipid, and protein. Prerequisites: BCH 361 and BIO 202 and NTR 241 (or their equivalents).

### **E NTR 442 Experimental Foods. (3)**

*selected semesters*

Food product development techniques, food evaluation and testing, and investigation of current research into food composition. 2 hours lecture, 3 hours lab. Fee. Prerequisites: CHM 231; NTR 142.

### **E NTR 444 Medical Nutrition Therapy. (3)**

*spring and summer*

Principles of medical nutrition therapy for prevention and treatment of disease and promotion of health. Prerequisites: BIO 201 and 202 and NTR 341 (or their equivalents). CHM 231 strongly recommended.

### **E NTR 445 Management of Food Service Systems. (3)**

*fall and spring*

Standardized methods of quantity food preparation, operation of institutional equipment, institutional menu planning, quantity food experiences. Integrated lecture/lab. Fee. Prerequisites: NTR 142 and 344 (or their equivalents).

### **E NTR 446 Human Nutrition Assessment Lecture/Laboratory. (3)**

*fall and spring*

Clinical and biochemical evaluation of nutritional status. 2 hours lecture, 3 hours lab. Fee. Prerequisites: BCH 361, 367; NTR 440 (or 441).

### **E NTR 448 Community Nutrition. (3)**

*fall and spring*

Food-related behaviors; organization and delivery of nutrition services; program design, implementation, and evaluation strategies; nutrition assessment of populations. Prerequisite: NTR 241 (or its equivalent).

*General Studies: L*

### **E NTR 450 Nutrition in the Life Cycle I. (3)**

*fall*

Emphasizes nutritional needs and problems during pregnancy, lactation, infancy, and childhood. Prerequisite: NTR 100 or 241 (or its equivalent).

*General Studies: SB*

### **E NTR 451 Nutrition in the Life Cycle II. (3)**

*spring*

Nutritional needs and problems of adults, particularly the elderly. Prerequisite: NTR 100 or 241 (or its equivalent).

**Omnibus Courses.** For an explanation of courses offered but not specifically listed in this catalog, see "Omnibus Courses," page 63.

**Graduate-Level Courses.** For information about courses numbered from 500 to 799, see the *Graduate Catalog*, or access [www.asu.edu/catalog](http://www.asu.edu/catalog) on the Web. In some situations, undergraduate students may be eligible to take these courses; for more information, see "Graduate-Level Courses," page 62.



Welcome Week activities at the Polytechnic campus

Tim Trumble photo