

# FACULTY

## DIVISION HEAD

Cornelis W. Koutstaal

## PROFESSORS

John A. Applegate, Paula S. Cochran, Gretchen Cornell, Cornelis W. Koutstaal, Jerry Mayhew, Fontaine C. Piper

## ASSOCIATE PROFESSORS

Michael Bird, , Carolyn C. Cox, Carlton O. DeFosse, Janet L. Gooch, Christopher Lantz, Beverly Triana-Tremain

## ASSISTANT PROFESSORS

Sarah P. Delaware, Mariquit Hadwiger, Steven Hadwiger, Brenda Higgins, Mary Barbara Kline, Alex Koch, Regina Lindhorst, Rebecca McClanahan, Sharon A. McGahan, James Padfield, Stephanie Powelson, JoAnn Weekley, Brenda Wheeler

## INSTRUCTORS

Jeff Arabas, Alf Bilbao, Evonne Bird, Michelle Boyd, Mike Cannon, John Cochrane, Mary Lou Cole, Matt Copeland, Tim Deidrick, Julie DeVries, Marne Fauser, Troy Garrett, Stephanie Horton, Seth Huston, Melody Jennings, Elizabeth Jorn, Pete Kendall, Keeth Matheny, Colleen Murphy, Matthew Nelson, Becky Pike, Edward Schneider, Jack Schrader, David Schutter, Larry Scully, John Sloop, Mathew Steinberg, Qi Wang, John Ware, Dan Zimmer

## CLINICAL SUPERVISION COORDINATOR (CMDS)

Melissa Passe

## CLINICAL SUPERVISOR (CMDS)

Sheila Garlock

# DEGREES OFFERED

## COMMUNICATION DISORDERS

Bachelor of Arts  
Bachelor of Science  
Master of Arts

## HEALTH AND EXERCISE SCIENCES

Bachelor of Science  
Exercise Science  
Health Science

## NURSING

Bachelor of Science in Nursing

# HUMAN POTENTIAL AND PERFORMANCE

The Division of Human Potential and Performance offers curricula that combine scientific inquiry and practical application in preparation for professional careers centered on human welfare. Based on a foundation of liberal arts and sciences, the division's curricula specialize in studies of Communication Disorders, Health and Exercise Sciences, and Nursing. Practical experience is valued and each program has extensive opportunities for clinical and/or field experiences through our own clinic, laboratories, internships, and rotations. Our programs are accredited by national, state, and professional boards, where appropriate, to ensure student's eligibility for certification and licensure. In addition to the major degree programs, our division also offers academic minors and interdisciplinary courses designed as support courses or electives for students in other disciplines.

The nature of our career preparation ensures a high level of student-faculty interaction with a great deal of individualized learning opportunities. Students are encouraged to engage in research projects that are sponsored by faculty. Student organizations affiliated with their respective professional associations promote student-faculty interactions, as well, in addition to formal classroom learning. The Division of Human Potential and Performance endeavors to provide a learning climate that allows students to reach their highest potential in preparing for careers in health and wellness, through academic and practical performance. Our graduates are well prepared to continue their studies in the same or one of many other disciplines at the graduate level or in professional schools.

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## HUMAN POTENTIAL AND PERFORMANCE

HUMAN  
POTENTIAL  
AND  
PERFORMANCE

# COMMUNICATION DISORDERS

## DEGREES OFFERED

- Bachelor of Arts
- Bachelor of Science
- Master of Arts

## UNDERGRADUATE MAJOR

Communication Disorders (BA, BS)

The undergraduate major in Communication Disorders is designed to provide a broad background in normal communication processes, an introduction to the techniques and tools with which speech, language, and hearing disabilities are evaluated, and an introduction to the characteristics of disorders of communication in adults and children. The American Speech-Language-Hearing Association (ASHA) explicitly recommends that the best preparation for graduate work in communication disorders is a strong undergraduate background in liberal arts and sciences. The undergraduate major in communication disorders, in conjunction with the Truman general education curriculum, is designed to provide such preparation.

An undergraduate major in communication disorders draws from the content and methodologies associated with many closely related areas of study, such as linguistics (phonetics), psychology (language development), biology (anatomy of speech and hearing, audiology), physics (speech and hearing science), speech communication (voice and articulation), and education (principles of clinical practice, aural rehabilitation). Courses in the major are carefully sequenced, leading to a senior-level culminating experience. Students choose a clinical or non-clinical culminating experience, depending upon their qualifications, interests, and long-term career goals.

Students who have questions about majoring in communication disorders should contact the Program Director in Communication Disorders (660-785-4669) for more information. The number of students permitted to major is limited.

### Special Facilities

The Communication Disorders program staffs and maintains the Truman State University Speech and Hearing Clinic. The Clinic has individual and group therapy rooms, observation facilities, and modern closed-circuit TV and videotaping capabilities to facilitate supervision and observation by student clinicians and client family members. An audiological testing suite is available for complete hearing evaluations. The Kenneth M. McGuire Clinical Media Center houses the Clinic's extensive collection of diagnostic and therapy materials and is used by student clinicians as they prepare for therapy and complete other case management tasks. Student clinicians make use of the Clinical Computing Lab to explore and prepare clinical applications of computers for direct use with clients. Additional multimedia technologies readily available for use include interactive videodisc, CD-ROM, as well as both sound and video digitizing.

The Clinic is open throughout the academic year and summer semesters, serving a local and regional population of all ages. Members of the university community including

students, faculty, staff and their families are also served by the Clinic. All Clinic services are provided under the supervision of faculty who are licensed by the Missouri State Board of Registration for the Healing Arts and certified by the American Speech-Language-Hearing Association.

### General Information

The Bachelor's degree in Communication Disorders can serve as strong preparation for a number of careers which require specialized graduate level study, including speech-language pathology, audiology, special education, and others in health, education, or communication-related fields. It is considered a pre-professional degree by the American Speech-Language-Hearing Association. Undergraduate majors are encouraged to consider graduate education alternatives, and assisted in making plans to do so. Master's level work is required in order to obtain professional credentials such as certification by the American Speech-Language-Hearing Association, Missouri State Teaching Certification, and the state licensure from the Missouri State Board of Registration for the Healing Arts.

Courses designated as Required Support for the major in Communication Disorders are chosen to help students meet a variety of certification requirements. Substitutions should be taken only after consultation with an academic advisor who is well-informed about the details of the curriculum.

All student majors must observe a minimum of 25 clock hours of evaluation and/or intervention services as approved by the Truman Communication Disorders faculty. These observations normally take place in the Truman Speech and Hearing Clinic. Note that observations must be completed as a prerequisite to enrolling for either undergraduate or graduate level clinical practicum (CMDS 480, CMDS 681).

## COMMUNICATION DISORDERS

### BACHELOR OF SCIENCE

	Semester Hours
<b>Liberal Studies Program Requirements</b> . . . . .	<b>41-62</b>
<b>Missouri Statute Requirement:</b> . . . . .	<b>1-3</b>
POL 161, American National Government is recommended to meet this, as well as Missouri teacher certification requirements.	
<b>Required Support</b> . . . . .	<b>14-23</b>
PSYC 166 General Psychology** . . . . .	3
ENG 238 Introduction to Linguistics . . . . .	3
ED 230 Early Childhood Growth & Development	3
ED 389 Foundations of Education . . . . .	2
ED 593 Psychological Foundations . . . . .	3
SED 535 Counseling Students with Disabilities and Their Families . . . . .	3
HIST 104 United States History I, 1607-1877** <b>OR</b>	
HIST 105 United States History II, 1877-Present**	3
POL 161 American National Government** . . . . .	3
** May be used to fulfill Liberal Studies Program Requirements.	

<b>Bachelor of Science Requirements</b> . . . . .	<b>6</b>
Complete 6 hours from the following (with approval of advisor):	
BIOL 365 Human Anatomy . . . . .	4
PHYS 185 College Physics I . . . . .	4
SOAN 331 Linguistic Anthropology . . . . .	3

PSYC	370	Human Sensation & Perception	3
PSYC	373	Psychology of Learning	3
HLTH	346	Microcomputer Applications <b>OR</b>	
ES	346	Microcomputer Applications	3

**MAJOR REQUIREMENTS . . . . . 33**

CMDS	260	Voice and Articulation	3
CMDS	261	Phonetics	3
CMDS	360	Introduction to Communication Disorders	3
CMDS	380	Principles of Clinical Management	3
CMDS	460	Language Development	3
CMDS	470	The Speech Mechanism	3
CMDS	472	Audiology	3
CMDS	473	Aural Rehabilitation	3
CMDS	474	Speech and Hearing Science	3
CMDS	490	Organization and Administration of Speech Pathology Services	4

Capstone Experience:

OPTION 1 (Clinical)  
 CMDS 480 Clinical Practice . . . . . 3

(See course description for CMDS 480. A prerequisite 3.0 GPA overall AND in all CMDS courses is required.) Students majoring in Communication Disorders must demonstrate clinically appropriate speech/language/hearing skills prior to enrollment in clinical practicum.

OPTION 2 (Non-Clinical)  
 CMDS 489 Culminating Experience in Communication Disorders . . . . . 3

Certification also requires two science courses with lab components; AGSC 100 does **not** meet certification requirements.

Electives to Total . . . . . **128**

**NOTE:** Communication Disorders majors must have a 2.50 cumulative G.P.A. and a 2.50 in the major in order to graduate.

**COMMUNICATION DISORDERS  
 BACHELOR OF ARTS**

		Semester	
		Hours	

**Liberal Studies Program Requirements . . . . . 41-62**

**Missouri Statute Requirement . . . . . 1-3**

POL 161, American National Government is recommended to meet this, as well as Missouri teacher certification requirements.

**Required Support . . . . . 14-23**

PSYC	166	General Psychology**	3
ENG	238	Introduction to Linguistics	3
ED	230	Early Childhood Growth and Development	3
ED	389	Foundations of Education	2
ED	593	Psychological Foundations	3
SED	535	Counseling Students with Disabilities and Their Families	3
HIST	104	United States History I, 1607-1877** <b>OR</b>	
HIST	105	United States History II, 1877-Present**	3
POL	161	American National Government**	3

\*\*May be used to fulfill Liberal Studies Program Requirements.

**Bachelor of Arts Requirements**  
 Intermediate proficiency in ONE foreign language . . . . **0-6**

**MAJOR REQUIREMENTS . . . . . 33**

CMDS	260	Voice and Articulation	3
CMDS	261	Phonetics	3
CMDS	360	Introduction to Communication Disorders	3
CMDS	380	Principles of Clinical Management	3
CMDS	460	Language Development	3
CMDS	470	The Speech Mechanism	3
CMDS	472	Audiology	3
CMDS	473	Aural Rehabilitation	3
CMDS	474	Speech and Hearing Science	3
CMDS	490	Organization and Administration of Speech Pathology Services	4

Capstone Experience:

OPTION 1 (Clinical)  
 CMDS 480 Clinical Practice . . . . . 3

(See course description. A prerequisite 3.0 GPA overall and in all CMDS courses is required.) Students majoring in Communication Disorders must demonstrate clinically appropriate speech/language/hearing skills prior to enrollment in clinical practicum.

OPTION 2 (Non-Clinical)  
 CMDS 489 Culminating Experience in Communication Disorders . . . . . 3

Certification also requires two science courses with lab components; AGSC 100 does **not** meet certification requirements.

Electives to Total . . . . . **128**

**Note:** Communication Disorders majors must have a 2.50 cumulative G.P.A. and a 2.50 in the major in order to graduate.

**CMDS COURSE SEQUENCE (MAJOR REQUIREMENTS)  
 FRESHMAN YEAR—FALL OR SPRING**

CMDS 260 Voice and Articulation . . . . . 3

**SOPHOMORE YEAR—FALL**

CMDS	261	Phonetics	3
CMDS	360	Introduction to Communication Disorders	3

**SOPHOMORE YEAR—SPRING**

CMDS 460 Language Development . . . . . 3  
 Prerequisites: CMDS 260, 261, 360, or instructor's permission

**JUNIOR YEAR—FALL**

CMDS 470 The Speech Mechanism . . . . . 3  
 Prerequisites: CMDS 260, 261, 360, 460, or instructor's permission

CMDS 472 Audiology . . . . . 3  
 Prerequisites: CMDS 260, 261, 360, 460, or instructor's permission

**JUNIOR YEAR—SPRING**

CMDS 380 Principles of Clinical Management . . . . 3  
 Prerequisites: CMDS 260, 261, 360, 460, 470, 472, or instructor's permission. Majors only.

CMDS 473 Aural Rehabilitation . . . . . 3  
 Prerequisites: CMDS 260, 261, 360, 460, 470, 472, or instructor's permission

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**HUMAN  
 POTENTIAL  
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**SENIOR YEAR—FALL**

CMDS 490 Organization and Administration of Speech Pathology Services .....4  
Prerequisites: CMDS 260, 261, 360, 460, 470, 472, 380, 473, or instructor's permission. Majors only.

**OPTION 1**

CMDS 480 Clinical Practice .....1.5  
Prerequisites: CMDS 260, 261, 360, 460, 470, 472, 380, 473, or instructor's permission. Majors only.

**SENIOR YEAR—SPRING**

CMDS 474 Speech and Hearing Science .....3  
Prerequisites: CMDS 260, 261, 360, 460, 470, 472, 380, 473, 490, or instructor's permission

**OPTION 1**

CMDS 480 Clinical Practice .....1.5  
Prerequisites: CMDS 260, 261, 360, 460, 470, 472, 380, 473, or instructor's permission. Majors only.

**OPTION 2**

CMDS 489 Culminating Experience in Communication Disorders .....3  
Prerequisites: CMDS 260, 261, 360, 460, 470, 472, 380, 473, 490, or instructor's permission. Majors only.

**CMDS 460 – Language Development**

**3 hours**

Study of typical language development in children from birth to adolescence. Theories of language development and placing language in the context of motor, cognitive, and social development. Language observation and linguistic analysis techniques; comparison of Standard American English to major social dialects. Relationship between language development and literacy. Prerequisites: CMDS 260, 261, 360, or instructor's permission.

**CMDS 470 – The Speech Mechanism**

**3 hours**

Study of anatomy, neuroanatomy, and physiology of the human speech mechanism. Coverage includes upper body skeletal, muscular, respiratory, and nervous systems. Focus on respiration, phonation, resonance, and articulation. Prerequisites: CMDS 260, 261, 360, 460, or instructor's permission.

**CMDS 472 – Audiology**

**3 hours**

Introduction to the anatomy and physiology of the human ear and the process of hearing. Basic principles of hearing assessment and characteristics of hearing disorders. Participants develop familiarity with the procedures and instrumentation used to measure human hearing and speech perception. Prerequisites: CMDS 260, 261, 360, 460, or instructor's permission.

**CMDS 473 – Aural Rehabilitation**

**3 hours**

Approaches to assisting persons with hearing impairment to maximize their communication with other people. Includes strategies such as speech-reading, speech conversation, and auditory training. Characteristics of deaf culture and current issues in hearing impairment intervention. Prerequisites: CMDS 260, 261, 360, 460, 470, 472, or instructor's permission.

**CMDS 474 – Speech and Hearing Science**

**3 hours**

Study and measurement of the acoustic characteristics of speech. Includes introduction to the physics of sound, review of speech production, and historical perspectives on the study of sound and scientific instrumentation. Lab assignments require instrumental analysis of speech signals. Prerequisites: CMDS 260, 261, 360, 380, 460, 470, 472, 473, 490, or instructor's permission.

**CMDS 475 – Sign Language**

**3 hours**

An introduction to the comprehension and use of sign language (signs, fingerspelling, and numbers). Participants will obtain a basic sign vocabulary and learn about the structure of American Sign Language. Open to any regular student currently enrolled at the University.

**CMDS 480 – Clinical Practice**

**3 hours (Taken over two [2] semesters, minimum)**

This course comprises Option 1 for the Capstone Integrating Experience in Communication Disorders. The student will obtain direct clinical experience with clients who exhibit a variety of communication disorders. Student responsibilities include: writing lesson plans; conferring with clinical supervisor and parents; utilizing clinical materials, equipment and computer programs; and writing

**COURSE  
DESCRIPTIONS**

**CMDS 260 – Voice and Articulation**

**3 hours**

Fundamentals of spoken communication with emphasis on voice and diction. Oral class presentations are required and students learn to make use of self evaluation and peer critique. Participants learn optimal use of their own voice and articulation for effective oral communication. This course is open to non-CMDS majors as well as majors.

**CMDS 261 – Phonetics**

**3 hours**

Study of the speech sounds of language with emphasis on American English. Participants practice broad and narrow transcription of speech using the International Phonetic Alphabet. Comparisons of Standard American English pronunciation with regional and social dialects.

**CMDS 360 – Introduction to Communication Disorders**

**3 hours**

Review of normal speech, language, and hearing development and acquired disorders of speech and language in children and adults. Theories of etiology and examples of traditional intervention strategies. Potential impact of speech or language impairment on the social, emotional, and vocational aspects of a person's life.

**CMDS 380 – Principles of Clinical Management**

**3 hours**

Introduction to assessing human communication behavior and planning intervention for improving speech and language abilities. Introduction to principles of professional and ethical conduct. Participants observe persons with communication disorders and intervention techniques in the Truman State University Speech and Hearing Clinic. Prerequisites: CMDS 260, 261, 360, 460, 470, 472, or instructor's permission. Majors only.

reports. Taken by consent of instructor. May be repeated. Initial registration is limited to one and one half (1.5) hours. Registration for summer is for all 10 weeks. Prerequisite: Observation of 25 hours of evaluation and management and a 3.0 grade point average overall and in all CMDS courses. Prerequisites: CMDS 260, 261, 360, 380, 460, 470, 472, 473, or instructor's permission. (Majors only).

**CMDS 485 – Speech for the Classroom Teacher**  
**3 hours**

Aids the prospective classroom teacher in improving his/her own speech and coping with speech, language, and hearing problems encountered in the classroom. Emphasizes normal speech and language development. Methods for detection, understanding, prevention, and improvement of speech and language problems.

**CMDS 488 – Independent Studies**  
**1-3 hours**

Special problems and research in language, communication disorders, audiology, special population, and related areas. Prerequisites: Advanced arrangement with instructor is required.

**CMDS 489 – Culminating Experience in Communication Disorders**  
**3 hours**

This course comprises Option 2 for the Capstone Integrating Experience in Communication Disorders. The course is designed to allow students to integrate their knowledge of speech/language pathology with skills in professional writing. To this end, students will write weekly papers summarizing topic presentations given by professionals or viewed from videos. Topics may range from Alzheimer's disease to deafness. Students will refine their writing by demonstrating weekly improvements in the areas of content, grammar, and punctuation. In addition, students will log instructor's comments and corrections onto a weekly recording form. Implications that these topics have for society, people needing services, and service providers will be addressed. Prerequisites: CMDS 260, 261, 360, 380, 460, 470, 472, 473, 490, or instructor's permission. (Majors only)

**CMDS 490 – Organization and Administration of Speech Pathology Services**  
**4 hours**

Organizational structures and administrative practices related to the provision of services to persons with communication disorders. Characteristics of professional practice in a variety of settings, with emphasis on relevant legal statutes and guidelines. History of the development of communication disorders as an interdisciplinary field of research and professional practice; current professional issues. Prerequisites: CMDS 260, 261, 360, 380, 460, 470, 472, 473, or instructor's permission. (Majors only)

**CMDS 560 – Professional Writing Seminar**  
**1-3 hours**

This seminar will provide the student in Communication Disorders with intensive instruction in clinical writing in preparation for the clinical experience as well as future employment. The following areas of writing will be addressed: format of scientific writing, diagnostic reports, treatment plans, SOAP notes, professional correspondence, Individual Education Plans (IEP), and ethical issues in

report writing. Prerequisite: CMDS 380 or consent of instructor.

**CMDS 562 – High Risk Infants**  
**3 hours**

Familiarizes students with the concept of high risk as it applies to infants. Factors which contribute to a high-risk label being applied to an infant will be discussed. The developmental outcome of high-risk infants during the preschool and school age years will be presented. Assessment and intervention strategies, as well as available materials, will be outlined. Parental and family concerns will also be discussed relative to the special adjustments and needs of the high-risk infant.

**CMDS 564 – Voice Disorders**  
**3 hours**

Theories of voice production, emphasizing voice defects, related pathologies, and therapeutic procedures.

**CMDS 566 – Diagnosis of Communication Disorders**  
**3 hours**

Etiologies of communication disorders, emphasizing diagnostic procedures, interviews, history techniques, parental counseling, report writing, and referral. Prerequisite: consent of instructor and eligibility for CMDS 480, Clinical Practice.

**CMDS 568 – Phonological Disorders**  
**3 hours**

An overview of phonological theory, evaluation, and treatment methods for disorders of phonology enabling the student to effectively design a therapeutic program.

**CMDS 578 – Clinical Applications of Computers in Communication Disorders**  
**3 hours**

This course presents an overview of the computer applications available to clinicians for diagnosis and remediation of persons who have communication disorders. Emphasis will be placed on applications which are used directly with clients in speech and language intervention. Prerequisite: permission of instructor, prior experience with special populations such as CMDS 480, Clinical Practice or CMDS 681, Advanced Clinical Practice, or SED 640, Practicum.

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**HUMAN  
 POTENTIAL  
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 PERFORMANCE**

**FACULTY  
 CREDENTIALS**

**Note:** Date in parentheses indicates year of employment at Truman. \*Indicates graduate faculty.

**John A. Applegate**

Professor and Director of Communication Disorders\*  
 BA, Muskingum College; MA, Ohio University; PhD, Kent State University. (1980)

**Paula S. Cochran**

Professor of Communication Disorders\*  
 BA, College of Wooster; MA, Ohio University; PhD, University of Virginia. (1987)

HUMAN  
POTENTIAL  
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**Carlton O. DeFosse**

Associate Professor of Communication Disorders  
BS, Western Illinois University; MA, Western Illinois  
University; PhD, University of Toledo. (2001)

**Sheila J. Garlock**

Clinical Supervisor  
BSE, Northeast Missouri State University; MA, Northeast  
Missouri State University. (1996)

**Janet L. Gooch\***

Associate Professor of Communication Disorders  
BA, University of Kansas; MA, Kent State University; PhD,  
Case Western Reserve University. (1995)

**Mary Barbara Kline**

Assistant Professor of Communication Disorders;  
Supervisor, Speech and Hearing Clinic  
BS, Marquette University; MA, Northeast Missouri State  
University. (1973)

**Melissa Passe**

Clinical Supervision Coordinator, Speech and Hearing  
Clinic  
BS, MA, Northeast Missouri State University. (1992)

Health & Exercise Sciences at (660) 785-4460 or by e-mail  
(fpiper@truman.edu).

**BS DEGREE REQUIREMENTS**

Candidates for BS degrees in Health Science or Exercise  
Science must have a 2.0 overall GPA and a 2.5 GPA in  
select major courses (see advisor or program office for spe-  
cific courses) for graduation.

**HEALTH SCIENCE MAJOR**

The Bachelor of Science degree in Health Science is  
enhanced by a broad liberal arts background in English,  
mathematics, biological and physical sciences, social sci-  
ences, and humanities, together with the specialized cours-  
es that comprise the depth of the Health Science major.

The Health Science curriculum is designed to prepare stu-  
dents as health promoters through educational or clinical  
settings in school, community or public health environ-  
ments. The undergraduate degree provides training for  
entry-level positions in municipal, county, state and  
national health departments, voluntary health agencies  
and HMO's (health maintenance organizations) as well as  
the curricular background necessary for graduate work in  
public health, health administration, occupational therapy,  
medicine, or physician's assistant (PA) programs.

Students graduating in Health Science from Truman State  
University will be technically and professionally competent  
and accountable. More specifically, graduates of the pro-  
gram will:

1. Gain experiences and training based on a Liberal Arts  
and Sciences background that supports specialized  
study in personal health encompassing nutrition, mental  
health, sexuality and family life, school health programs,  
community health, worksite health, and public health;
2. Demonstrate knowledge of anatomy, physiology, micro-  
biology, psychology, sociology, and growth and motor  
development;
3. Develop competency to assess individual, school, and  
community needs for health education and services and  
to plan, implement, and evaluate health programs;
4. Acquire skills to coordinate health services and act as a  
resource person in health education and health services;
5. Develop competency to select and utilize methods most  
effective for all aspects of health and to understand and  
use appropriate evaluation procedures;
6. Develop competency to understand, interpret, and apply  
research findings and to have a knowledge of research  
technique suitable for the evaluation of program effec-  
tiveness;
7. Gain knowledge of teaching and learning theory in  
health education as demonstrated in laboratory and  
internship experiences;
8. Acquire skills to conduct needs assessments, design,  
implement, and evaluate health education programs.

One of the most unique features of the Truman Health  
Science undergraduate experience is the opportunity to  
actively engage in research. Approximately 75 percent of  
Health Science majors present their findings at interna-  
tional, national, state or local professional conferences, or  
publish their work nationally. Truman's Health Science  
curriculum has also been internationally recognized as the  
Association for Worksite Health Promotion's (AWHP)  
Undergraduate Curriculum of the Year for academic years  
1996-97 and 1997-98.

HEALTH AND  
EXERCISE SCIENCES

**DEGREES OFFERED**

Bachelor of Science

At Truman State University, the professional teaching  
degree is the Master of Arts in Education, built upon a  
strong liberal arts and sciences undergraduate degree.  
Students who wish to become teachers should consult with  
their academic advisors as early as possible. The profession-  
al preparation component of the Master's degree program is  
administered in the Division of Education. Please contact  
that office for further information (660-785-4383).

**UNDERGRADUATE MAJORS**

Health Science  
Exercise Science

**GOALS**

The goal of the Health Science and Exercise Science  
Programs is to attract top-quality students who can achieve  
the objectives of the Liberal Arts curriculum and serve as  
missionaries of wellness. Students in these programs are  
being prepared for graduate study in medicine, physical  
therapy, sport psychology and sociology, physician's assis-  
tant programs, public health, health administration, and  
occupational therapy; as well as for careers in exercise phys-  
iology, cardiac rehabilitation/wellness, sport and recreation  
management, athletic training, community health, worksite  
health, and for teaching, coaching, and administration posi-  
tions in the public schools. Regardless of one's specific pro-  
fessional goals, students in Health Science or Exercise  
Science are exposed to a variety of learning experiences,  
and they are taught the most salable of skills: how to learn.

Students who have questions about majoring in Health  
Science or Exercise Science should contact the Director of

HUMAN  
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A distinguishable feature of the Health Science program is its focus on accountability. In addition to the comprehensive testing program of the University, all required health courses incorporate pre/post testing to determine achievement of educational objectives. The Health Science graduate will also demonstrate a high level of health knowledge as assessed by a senior exit examination. Health Science faculty and the University have selected and approved the Certified Health Education Specialist (CHES) examination as the measure of this competency. This feature affords our students to obtain validation of their education through a nationally recognized examination in their specialized field of study. Truman is amongst the handful of institutions in the country to provide this opportunity for their Health Science graduates.

The program culminates in a four-credit, 200-hour required field experience. Depending on the student's specialized interest, the field experience provides opportunities to design and implement programs in a organizational setting under the supervision of highly qualified professionals in the field, working in cooperation with a division supervisor. The experience allows for the application of theory and knowledge in a practical setting.

**HEALTH SCIENCE  
BACHELOR OF SCIENCE**

	Semester	
	Hours	
<b>Liberal Studies Program Requirements</b>	<b>41-62</b>	
<b>Missouri Statute Requirement</b>	<b>1-3</b>	
<b>Required Support</b>	<b>11-23</b>	
Complete each of the following:		
HLTH 194 Lifetime Health & Fitness**	2	
BIOL 325 Human Physiology	4	
BIOL 365 Human Anatomy	3	
BIOL 365 Human Anatomy Lab	1	
BIOL 353 Pathophysiology(3) <b>OR</b>		
BIOL 300 Genetics (4)	3-4	
PSYC 166 General Psychology**	3	
SOAN 190 Sociological Inquiry** <b>OR</b>		
SOAN 191 Anthropological Inquiry**	3	
STAT 190 Basic Statistics**	3	
**May be used to fulfill LSP requirements		

<b>Bachelor of Science Requirements</b>	<b>12-13</b>
Complete each of the following:	
BIOL 204 Introductory to Microbiology (3) <b>OR</b>	
BIOL 304 Microbiology (4)	3-4
HLTH 150 Nutrition in Health & Wellness	3
HLTH 310 Methods for Health Educators	3
PSYC 369 Behavior Modification	3

<b>MAJOR REQUIREMENTS</b>	<b>36</b>
Complete each of the following:	
HLTH 190 Foundations of Health Science	3
HLTH 245 Substance Abuse Prevention	3
HLTH 260 Human Sexuality	3
HLTH 261 Mental Health	3
HLTH 270 Consumer Health	3
HLTH 334 Physiological Assessment	3
HLTH 346 Microcomputer Applications	3
HLTH 362 Environmental Health	3
HLTH 366 Community Health	3
HLTH 367 Introduction to Epidemiology	3
HLTH 440 Program Planning and Evaluation	3
ES 205 Community First Aid and CPR	2

<b>Capstone Experience</b>	
HLTH 450 Senior Seminar	1
Pattern approved by advisor ♦	19-32
Electives to Total minimum of	124

**HEALTH SCIENCE PATTERNS**  
 ♦ To provide the opportunity for students to explore and develop more specialized interests, the Health Science curriculum allows the selection of one career pattern ranging from 19-32 hours. Courses comprising the program patterns are based upon the recommendations of faculty members whose expertise is identified with these specialties. Individualized patterns may also be designed to meet personal goals. A copy of specific courses for each of the patterns can be obtained in the Health and Exercise Sciences Program office. A brief description of each pattern is provided below.

**Community Health (19 Hours):** The Community Health Educator may be employed in voluntary agencies (Red Cross, American Lung Association, Women's Health Clinics, etc.), local agencies (private companies, HMO's, PPO's, hospitals, etc.), county or state agencies (health departments), or federal agencies (CDC, U.S. Department of Health, etc.). The specific job may be a one-on-one approach (HIV/AIDS Educator) or it may involve an entire state, as in the case of coalition building. Leadership, ability to work independently, health knowledge, and a vast resource library are the principle ingredients that make up the Community Health Educator. It is not unlikely that a person in this position would be responsible for grant proposals or alternative sources of funding, especially when employed with voluntary agencies. In addition, the health educator may have some research and writing responsibilities. Therefore, this individual should have excellent writing and oral communication skills. The expectation of most employers is to minimize or eliminate illness and injury through the assessment, planning, implementation, and evaluation of quality health education/health promotion programs.

**Health Administration (19 Hours):** The individual interested in Health Administration must be able to effectively serve as a supervisor or leader while at the same time answer to the organization or governing body of the particular health facility. Managers and supervisors in health administration positions may be called upon anytime of the day or week to solve problems, therefore the individual must be willing to be responsible for a facility that remains open 24 hours per day/7 days per week. This graduate will manage a facility that employs a number of the community members from the higher socioeconomic groups (physicians, nurse managers, pharmacists, etc.). These are autonomous people working as a team to provide care for the sick, injured, and debilitated. Considering these facts, the legal concerns that come with the management of such facilities rivals any other form of management with regards to liability. The individual should be a highly motivated self-starter to resolve the daily management concerns associated with the health care industry. Additional qualities include a self-paced individual who stays in control under stress, one who possesses excellent communication skills, and has a good general knowledge of health facilities. Some of these qualities can be developed with time and education. Employment opportunities are found in voluntary agencies, health departments, hospitals, state agencies, and federal agencies. Refer to the descriptions above

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for specific employment opportunities. Entry-level positions may be found in some aspect of personal management or as an assistant administrator. To be successful, the graduate must have a solid background in human resources, legal aspects of health care, marketing, and health services. Expectations of the employer are to hire an individual who can lead a health care organization in a competent and professional manner.

**Pre-Medicine (32 Hours):** The pre-medicine pattern within the Health Science major is designed to prepare a student to take the MCAT examination, which is required for admission to medical school. The pre-medicine pattern is a viable option for those who are interested in family practice, preventative medicine, or pediatrics. Students are required to take class work in biology, chemistry, and physics in addition to the program focus required of a health science major. The solid Health Science background is excellent for a physician who will be working in a rural area as a general practitioner. Students must maintain a 3.25 GPA to remain in the pattern.

**Pre-Occupational Therapy (20-23 Hours):** This pattern is designed to prepare a student for admission into a graduate program in Occupational Therapy. Students are required to complete a 200-hour clinical experience practicum. Course work includes human anatomy, courses in manual manipulation, kinesiology, and psychology. To be a viable candidate for admission to a graduate program in occupational therapy a student must maintain a GPA of 3.25 or higher. Graduate admission is generally granted to students with a 3.5 GPA or higher.

**Pre-Physician's Assistant (26-28 Hours):** The Pre-Physician's Assistant pattern is designed to prepare students for entry into an advanced degree program that would lead to certification as a Physician's Assistant. Physician Assistant (PA) programs prepare the student to operate as a mid-level practitioner in family practice, preventative medicine, or pediatric settings, under the supervision of a physician. In addition to course work in biology, chemistry, physics, and psychology, the student must plan to gain experience in a medical-related setting throughout the college experience. Physician Assistant graduate programs are now requiring 2000+ hours of experience in health settings prior to admission. It is strongly advised that the student start to develop a related work dossier upon entry to the university to be able to complete the required hours for admission into graduate schools. Students must maintain a 3.00 GPA to remain in this pattern.

**Public Health/Epidemiology (19 Hours):** Public Health is where many relate the origins of the other Health Education Programs. In many instances, some treat Public Health and Community Health in the same domain. In our case, we will treat Public Health separately from Worksite or Community Health. Public Health, at this University, is a program developed for those who are interested in research and an epidemiological approach to controlling and educating about health problems. It is expected that most who complete this program will continue on with a Masters in Public Health (MPH) program. However, there are several positions that might be considered by an individual with a Public Health emphasis at the Bachelors level. Local, state and federal agencies interested in collecting and compiling health data are continually looking for qualified individuals to function in entry-level positions.

In these positions, the graduate will most likely be responsible for some aspect of a research study as assigned. This does not preclude obtaining a position as a Community Health Educator, given the same core of requirements is expected of all graduates in Health Science. With the completion of a MPH, the graduate will be qualified for many upper-level research and management tasks in Public Health. The U.S. Department of Health, Centers for Disease Control, state health departments, and universities all seek candidates with this credential. Specific employment opportunities include teaching, research, data collection, and data analysis. Public Health requires a strong background in the sciences, health, and social sciences. Employer expectations of graduates are to identify, recommend, educate, and promote quality health care in the defined area of employment.

**Worksite Health (19 Hours):** The Worksite Health Educator may be employed in a business, company, corporation, or federal agency. The environment is somewhat different than the Community Health Educator. The environment for the Worksite Health Educator is to a large extent, contained within the facility of hire. However, this may involve many community programs and health personnel outside of the agency. Therefore, the Worksite Health Educator must have expertise in health content, exercise science, and program planning. Employers expect that the Worksite Health Educator will reduce the cost of company health expenses, absenteeism, and overtime through assessment, planning, implementation and evaluation of illness and injury programs. With these expectations, the graduate must have a wide background in the sciences, health content areas, social sciences, and exercise programming. They are expected to work independently and in a professional manner. The opportunities in this field have been steadily growing over the past decade and vary significantly among various businesses. For example, some companies expect the health educator to emphasize fitness programs while others expect a total commitment to health content and skill development. However, there are many opportunities found in-between these two extremes. The expectation of most employers is to minimize or eliminate illness and injury through the assessment, planning, implementation, and evaluation of quality health education programs.

**Individualized:** The individualized pattern is designed to support the development of special support areas not available from the normal selection. This pattern must be relevant to the career goals of the student and must be one that would logically follow from the courses included with the major. This pattern is not a "catch-all" for courses taken that do not fit the published degree requirements. Individualized patterns must be submitted to the Program Director by the academic advisor for approval. The individualized pattern should be agreed upon early to facilitate course sequence planning.

### TEACHING CERTIFICATION FOR HEALTH SCIENCE MAJORS

Students interested in becoming Health Education teachers within the public school system should complete the Community Health pattern in addition to the following three Education courses: ED 389 Foundations of Education, ED 393 Clinical Experiences in Teaching, and ED 593 Psychological Foundations of Education. Health Science students completing any other pattern must com-



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plete one additional course, HLTH 360 School Health Programs, in addition to the three indicated Education classes. Because of the background required, it is strongly recommended that SOAN 190 be taken for the Social Scientific Requirement in the LSP. Students must also take HIST 104 or HIST 105 to meet the Historical Mode of Inquiry, as well as POL 161 to meet the Missouri Statute requirement. Successful completion of the above classes would partially fulfill the undergraduate requirements for admission into the graduate MAE program in Health Education. For additional requirements, please see the MAE Admission requirements in the Graduate section of the catalog.

**HEALTH EDUCATION MAE REQUIREMENTS**

ES	608	Management of Instruction
ES	647	Analysis and Interpretation of Data
ES	649	Research Methods in Hlth & Exercise Science
ES	650	Individual Study in Hlth & Exercise Science
HLTH	603	Seminar in Health Education

**EXERCISE SCIENCE MAJOR**

The Bachelor of Science degree in Exercise Science is predicated on a strong liberal arts and sciences foundation. The Exercise Science curriculum is designed to prepare students for careers in exercise physiology, cardiac rehabilitation/wellness, sport and recreation management, athletic training, and for coaching and teaching positions in the public schools; as well as graduate study in medicine, physical therapy, sport psychology and sociology, and physician's assistant programs.

The primary purpose of the Exercise Science program is to produce enlightened individuals who are prepared both to enter graduate schools and to make a living. More specifically, graduates of the Exercise Science program should:

1. Gain background through general studies in the symbolics of information, the humanities, and the natural and behavioral sciences;
2. Gain knowledge in Exercise Science subject matter and in allied fields;
3. Develop competency in Exercise Science and athletic skills and activities appropriate for children, youth and adults at various stages of development;
4. Develop competency to select and utilize methods most effective for all aspects of Exercise Science and to understand and use appropriate evaluation procedures;
5. Gain knowledge of teaching and learning theory in Exercise Science as demonstrated in laboratory and practicum experiences.
6. Develop competency to enable the Exercise Science major to understand, interpret, and apply research findings and have knowledge of research techniques suitable for the evaluation of program effectiveness;
7. Gain understanding of the different environments, learning processes, learning experiences, and multicultural variables that is featured in the role of the exercise scientist.

In addition to the comprehensive testing program of the University, all required exercise science courses incorporate pre/post testing to determine achievement of educational objectives. Students are also required to demonstrate com-

petency in the analysis of sports skills and in identifying the mechanical principles of performance.

Students will receive professional training and background through undergraduate research and diversified field experiences. Opportunities for additional research and creative projects will be provided for those students interested in pursuing advanced study. More than 60 percent of Exercise Science majors present their findings at international, national, state or local professional conferences or publish their work nationally. This opportunity allows students to become producers, rather than consumers, of knowledge. The program's Human Performance Laboratory and Biomechanics/Motor Learning Laboratory are well equipped to investigate the effects of exercise on physiological and psychological responses. Students often find research to be an exciting and challenging approach to learning. It is especially rewarding when the results can be applied to practical situations such as enhancing muscle strength, altering exercise programs, or devising new approaches to measuring physical performance.

The program in Exercise Science culminates in a four-credit, 200-hour required field experience. Depending on the student's specialized interest, the field experience provides opportunities to design and implement programs in a organizational setting under the supervision of highly qualified professionals in the field, working in cooperation with a division supervisor. The experience allows for the application of theory and knowledge in a practical setting.

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		Semester Hours
<b>Liberal Studies Program Requirements</b>		<b>41-62</b>
<b>Missouri Statute Requirement</b>		<b>1-3</b>
<b>Required Support</b>		<b>12-23</b>
ES	346	Microcomputer Applications . . . . .3
ES	344	Growth & Motor Development . . . . .3
HLTH	150	Nutrition in Health and Wellness . . . . .3
HLTH	194	Lifetime Health & Fitness** . . . . .2
HLTH	245	Substance Abuse Prevention <b>OR</b>
HLTH	260	Human Sexuality <b>OR</b>
HLTH	270	Consumer Health . . . . .3
STAT	190	Basic Statistics** . . . . .3
PSYC	166	General Psychology** . . . . .3
SOAN	190	Sociological Inquiry <b>** OR</b>
SOAN	191	Anthropological Inquiry** . . . . .3
		**May be used to fulfill LSP requirements.

<b>Bachelor of Science Requirements</b>		<b>8</b>
BIOL	325	Human Physiology . . . . .4
BIOL	365	Human Anatomy . . . . .3
BIOL	365	Human Anatomy Lab . . . . .1

**MAJOR REQUIREMENTS . . . . .34-37.5**

**Complete each of the following:**

ES	190	Foundations of Exercise Science . . . . .3
ES	205	Community First Aid and CPR . . . . .2
ES	232	Sport Management <b>OR</b>
ES	435	Training Room Management* . . . . .3
ES	334	Physiological Assessment . . . . .3
ES	342	Concepts of Biomechanics . . . . .3
ES	343	Motor Learning and Control . . . . .2
ES	343	Motor Learning and Control Lab . . . . .1
ES	345	Introduction to Exercise Physiology . . . . .3

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ES 431 Injury Care of Active People (2) **OR**  
 ES 500 Athletic Injuries (3) .....2-3  
 ES 447 Data Interpretation in Exercise Science .....2  
 ES 502 Social Problems in Sport **OR**  
 ES 503 Psychology of Sport and Exercise .....3  
 ES 505 Advanced Biomechanical Analysis .....3

\*Not required for Pre-Medicine Pattern.

**Activities (4.0-6.5 hours)**

(Select one (1) course from each of Areas A, B, C, and D; then select any additional course(s) from any area below (A-F) to equal 1 additional hour.)

**A. Recreational Dance (select a minimum of one course)**

ES 154 Ballroom Dancing .....1  
 ES 159 Social & Country/Western Dance .....1  
 ES 211 Folk and Social Dance .....1

**B. Swimming (select a minimum of one course)**

ES 130 Beginning Swimming .....1  
 ES 131 Intermediate Swimming .....1  
 ES 133 Lifeguard Training .....2  
 ES 134 Lifeguard Training Instructor .....2  
 ES 135 Water Safety Instructor .....2  
 ES 172 Analysis of Swimming .....1

**C. Team Sports (select a minimum of one course)**

ES 173 Analysis of Football .....1/2  
 ES 174 Analysis of Basketball .....1/2  
 ES 176 Analysis of Volleyball .....1/2  
 ES 177 Analysis of Softball .....1/2  
 ES 178 Analysis of Soccer .....1/2  
 ES 179 Outdoor Activities\* .....1/2

\*Required for Physical Education/Health/Coaching pattern

**D. Individual Activities (select a minimum of one course)**

ES 170 Analysis of Gymnastics .....1  
 ES 180 Analysis of Tennis .....1/2  
 ES 181 Analysis of Badminton .....1/2  
 ES 183 Analysis of Fencing .....1/2  
 ES 184 Analysis of Golf .....1/2  
 ES 185 Analysis of Weight Training .....1/2  
 ES 186 Outdoor Venture Activities\* .....1/2  
 ES 187 Analysis of Wrestling .....1/2  
 ES 188 Analysis of Racquetball .....1/2  
 ES 189 Analysis of Track and Field .....1/2

\*Required for Physical Education/Health/Coaching pattern

**E. Aerobic Activity**

ES 200 Techniques of Aerobic Dance .....1

**F. Dance\***

ES 156 Beginning Tap Dancing .....1  
 ES 157 Beginning Jazz Dance .....1  
 ES 212 Modern Dance .....1  
 ES 214 Elementary Ballet .....1  
 ES 215 Intermediate Ballet .....1  
 ES 236 Creative Dance for Children .....1  
 ES 256 Intermediate Tap Dancing .....1  
 ES 257 Intermediate Jazz Dancing .....1

**Capstone Experience .....1**

ES 450 Senior Seminar .....1

Patterns approved by advisor♦ .....21-34

Electives to Total minimum of .....124

**EXERCISE SCIENCE PATTERNS**

♦ To enable the students to explore and develop more specialized interests, the Exercise Science curriculum allows the selection of one career pattern ranging from 21-34 hours. Individualized patterns may also be designed to meet personal goals. A copy of the specific courses for each of the patterns can be obtained from the Health and Exercise Sciences program office. A brief description of each pattern is provided below.

**Athletic Training (21 Hours):** The athletic training pattern is designed to prepare students to successfully pass the NATABOC (National Athletic Trainers' Association Board of Certification) exam and enter the field of athletic training as a certified athletic trainer. Students will spend approximately 20 hours a week in a program of progressive clinical experiences gaining the skills necessary to perform the duties of a certified athletic trainer. In addition to the exercise science requirements such as anatomy, physiology, nutrition, biomechanics, and exercise physiology, students will complete the athletic training pattern courses including: basic and advanced athletic training, athletic injury evaluation, rehabilitation of athletic injuries, therapeutic modalities, and athletic training room management. The athletic training pattern is accredited by CAAHEP (Committee for Accreditation of Allied Health Education Programs). Formal application to the pattern is required. Application involves a completed application form, two letters of recommendation, an interview with the head and two assistant athletic trainers, and a four-year commitment to the athletic training pattern. Application forms can be obtained by writing to the head athletic trainer, or printing them from the web site ([www2.truman.edu/~es47/athome2.htm](http://www2.truman.edu/~es47/athome2.htm)). Applications must be received before March 1. Acceptance into the program is determined by the certified athletic training staff and is based on: the student's potential to successfully complete cognitive and psychomotor competencies and proficiencies, aptitude to maintain a 3.0 grade point average in all academic course work while completing 20 hours a week of clinical experience, commitment to pursuing a career in athletic training, and the number of vacant spaces available. Specific details are included with the application materials. A minimum GPA of 3.00 is required to enter and remain in this pattern.

**Exercise Physiology (23-25 Hours):** The Exercise Physiology pattern is designed to prepare students for graduate school or an entry-level position in clinical exercise physiology. The pattern develops extensive knowledge of the body under the adaptive stress of exercise including the study of body composition, energy metabolism, cardiovascular function, muscular strength and development, neuromuscular integration, and thermal regulation. An emphasis is placed on development of a research-based approach to investigating physiological phenomena. Students who wish to enter clinical exercise physiology (cardiac rehabilitation) have the option to specialize their exercise physiology studies with advanced studies in EKG interpretation, pathophysiology, pharmacology, and behavior modification.

**Physical Education/Health/Coaching (30-34 Hours):** Students who select this pattern are interested in the MAE program and in coaching while teaching Physical Education or Health Education. Because of the background required, it is strongly recommended that SOAN 190 be taken for the Social Scientific Requirement in the LSP. Students must also take HIST 104 or HIST 105 to meet the Historical Mode of Inquiry, as well as POL 161 to meet the Missouri Statute requirement. Completion of ES 179 and ES 186 as part of the Exercise Science activity requirements must also occur. Completion of this pattern, including three Education courses (ED 389, ED 393, and ED 593), would partially fulfill the undergraduate requirements for admission into the graduate MAE program in Exercise Science. For additional requirements, please see

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the MAE Admission requirements in the Graduate Section of the catalog.

**Pre-Medicine (32 Hours):** The pre-medicine pattern is designed to prepare a student to take the MCAT examination, which is required for admission to medical school. The pre-medicine pattern within the exercise science program is viewed as a viable choice for those who are interested in the orthopedic/sports medicine aspect of physician care. The required courses in biomechanics, kinetics, exercise physiology, motor learning and sport psychology or sport sociology provide a solid foundation for the sports medicine/team physician. A minimum GPA of 3.25 is required for this pattern.

**Pre-Physical Therapy (28-29 Hours):** This pattern is designed to prepare the student for admission into a master's degree program in physical therapy. Students are required to obtain a minimum of 200 hours of clinical experience in a physical therapy setting. Course work includes human anatomy, therapeutic modalities, physical rehabilitation and evaluation, as well as physics and psychology. The pre-physical therapy pattern requires the student to maintain a minimum GPA of 3.25. A Student falling below the required GPA will be required to select another pattern. Graduate admission is generally granted to students with a GPA of 3.5 or higher.

**Pre-Physician's Assistant (25-28 Hours):** The Pre-Physician's Assistant pattern is designed to prepare students for entry into an advanced degree program that would lead to certification as a Physician's Assistant. Physician Assistant (PA) programs prepare the student to operate as a mid-level practitioner in family practice, preventative medicine, or orthopedic settings (sports medicine), under the supervision of a physician. In addition to course work in biology, chemistry, physics, and psychology, the student must plan to gain experience in a medical-related setting throughout the college experience. Physician Assistant graduate programs are now requiring 2000+ hours of experience in health settings prior to admission. It is strongly advised that the student start to develop a related work dossier upon entry to the university to be able to complete the required hours for admission into graduate schools. Students must maintain a 3.00 GPA to remain in this pattern.

**Psycho-Social Aspects of Sport (27 Hours):** The psycho-social aspects of sport pattern is designed to prepare students for entry into graduate training in sport psychology, sport sociology, or counseling. This pattern employs an interdisciplinary approach requiring courses from exercise science, psychology, and sociology based upon the Advancement of Applied Sport Psychology's certification model. Students will explore, through coursework, the basic content of areas of social and psychological theory and specific content areas of applied sport psychology and sport sociology. This coursework will lead to a minor in psychology. This pattern prepares students to enter into graduate programs that emphasize teaching and conducting scholarly research in psychology/sociology of sport or counseling.

**Sport and Recreation Management (22-25 Hours):** This pattern is designed to prepare Exercise Science majors for leadership positions in the fields of sport and recreation. Individuals with careers in sport management maintain a

variety of positions that help direct competitive sport organizations such as high school, intercollegiate or professional athletic programs. Recreation is a broad field that encompasses diverse organizations (YMCA/YWCA, Parks & Recreation departments) and highly specialized settings (golf/ski resorts). Careers in recreation focus on the leadership of broad-based programs that seek to maximize participation. The curriculum, with a foundation in the sciences supplemented by business and specialized courses, will foster an interdisciplinary perspective on Exercise Science and enable students to pursue graduate degrees in sport and recreation management.

**Individualized:** The individualized pattern is designed to support the development of special support areas not available from the normal selection. This pattern must be relevant to the career goals of the student and must be one that would logically follow from the courses included with the major. This pattern is not a "catch-all" for courses taken that do not fit the published degree requirements. Individualized patterns must be submitted to the Program Director by the academic advisor for approval. The individualized pattern should be agreed upon early to facilitate course sequence planning.

**EXERCISE SCIENCE MAE REQUIREMENTS**

ES	608	Management of Instruction
ES	647	Analysis and Interpretation of Data
ES	649	Research Methods in Health and Exercise Science
ES	650	Individual Study in Helath and Exercise Science

**Choose one of the following courses:**

ES	*501	Advanced Exercise Physiology
ES	*502	Sociology of Sport
ES	*503	Psychology of Sport
ES	*515	Exercise Testing & Prescription
ES	*532	Cardiac Pathophysiology

**DEPARTMENTAL HONORS PROGRAM**

**PURPOSES**

1. To address the special needs of outstanding students by providing a focus for formulating personal goals, developing self-esteem, and increasing the desire for self-directed learning.
2. To contribute to the general advancement of learning by encouraging the active pursuit of academic goals, as exemplified by research, scholarly activity, and creative endeavor.

**ELIGIBILITY**

Any Health Science or Exercise Science major who attains the following will receive Departmental Honors. Student must make application to the Health and Exercise Sciences Program Office, PB 212, during graduating semester.

1. Major GPA of 3.5 or higher
2. Overall GPA of 3.5 or higher
3. Complete a Research Project
4. \*Present at Undergraduate Research Symposium, present at a professional conference, or publish a paper (a paper that has been submitted or accepted for publication would qualify).

5. Obtain combined score of 1800 or higher on GRE, or 27 or higher on the MCAT, or pass a national, major specific, certification exam (ACSM, NATA, CHES, NSCA). Personal training and aerobic certifications do not apply.
6. Receive concurrence from majority of HES Faculty.

\*"Present" means that the individual was a major contributor to the research paper (assisted in the data collection, assisted in the data reduction and analysis, and assisted in preparation of manuscript, poster or oral presentation). A major contributor is one who participates meaningfully in all parts of the project, not a person who simply assisted with data collection. The faculty mentor is responsible for verifying level of participation.

## COURSE DESCRIPTIONS

### HEALTH SCIENCE

#### HLTH 150 – Nutrition in Health and Wellness

**3 hours** (Health Science or Exercise Science majors only or consent of program director)

Interdependence of human nutrition and food in the health and behavior of consumers. Diet analysis, controversies, and issues. May not be taken for credit by students who have successfully passed HPP 311.

#### HLTH 190 – Foundations of Health Science

**3 hours** (Health Science majors only)

This course will aid in the development of a basic foundation of awareness, knowledge, and skills from which to apply subsequent health education and health promotion principles. The course is based on the Seven Responsibilities of a Health Educator, which include assessing needs; planning, implementing, and evaluating health programs; coordinating provisions of services; acting as a resource person; and communicating health education needs.

#### HLTH 194 – Lifetime Health and Fitness

**2 hours**

The purpose of this course is to integrate material from human physiology, psychology, sociology and nutrition to present an interdisciplinary framework for disease prevention and risk management. Students will be instructed in and perform cardiovascular and strength training programs which will empower them to design a fitness program and provide a basis for lifetime health promotion. Fifty percent of the course entails regular physical activity, lab participation, and fitness evaluation.

#### HLTH 245 – Substance Abuse Prevention

**3 hours** (Health Science or Exercise Science majors only, or consent of program director)

This course is designed primarily for the health science, exercise science, or education-bound major who wishes to gain a basic knowledge of the prevention of substance abuse in community and school settings. Topics focus on the design, implementation, and evaluation of a systems approach to community-wide substance abuse prevention program.

#### HLTH 250 – Practicum I

**1-3 hours**

Course is designed to allow students to obtain practical experience in an area related to their major or pattern. Students may engage in an investigation, work in an allied field, or a combination of the two. Student is expected to complete a daily log and submit a written report detailing their experience as it relates to the major or pattern.

Prerequisites: HLTH 190, consent of advisor, and consent of program director.

#### HLTH 260 – Human Sexuality

**3 hours** (Health Science or Exercise Science majors only, or consent of program director)

This course is primarily intended for those individuals pursuing careers in health education/promotion, nursing, and other allied health professions. Course discussions include anatomy/physiology, decision-making skills, disease outcomes, relationships, parenting, birth control, and sexual expression.

#### HLTH 261 – Mental Health

**3 hours** (offered fall only) (Health Science majors only, or consent of program director)

This course meets the major requirements for the BS degree in Health Science. In this course, we will draw the parameters of mental health, examine Healthy People 2010 and the Surgeon General's Report of Mental Health, explore current schools of thought that dominate the field, and determine the role that positive mental health plays in the achievement of optimal health and wellness. Selected topics include: positive mental health, self-esteem, emotional health, non-violent conflict resolution/peer mediation, stress and stress management, problems of everyday living, community-based mental health services, and health counseling skills. Prerequisite: HLTH 190 or ES 190.

#### HLTH 270 – Consumer Health

**3 hours** (Health Science or Exercise Science majors only, or consent of instructor)

This course meets the major requirements for the BS degree in Health Science. The course provides an overview of the complex health marketplace in order to assist consumers in protecting their health. Selected topics include: consumer protection/resources, problems in the health care system, health frauds, advertising/psychographics, medical self-care, complementary medicine, managed care, and aging/death and dying consumer issues.

#### HLTH 305 – Disease in Man

**3 hours (offered spring only)**

This course is intended for those who are interested in becoming a community health professional or those whose work may be closely related. The course emphasizes disease and injury associated with humans. Pre and post disease/injury information is discussed as well as methods of prevention. Prerequisite: HLTH 190.

#### HLTH 310—Methods for Health Educators

**3 hours** (Health Science majors only, or consent of program director)

This course meets the BS degree/LAS Requirements for the Health Science Major. The course actively involves the student in the development and selection of materials, methods, and techniques for communicating health and health education information to individuals and populations. Students will select a health education agency/organiza-

tion and a health topic/issue to communicate a mass media/multi-media persuasive health communication message/campaign to a targeted population in a community. The student will demonstrate proficiency in communicating this health information/targeted message via multiple media methods. Prerequisites: HLTH 362, HLTH 366, HLTH 346.

**HLTH 334 – Physiological Assessment**

**3 hours** (Health Science majors only, or consent of program director)

This course is designed to introduce students to the functional assessment of human fitness and performance. Students will be actively involved in the measurement and evaluation of components of body composition, cardiorespiratory, musculoskeletal, and skill-related fitness. Prerequisites: HLTH 190 and STAT 190.

**HLTH 346 – Microcomputer Applications**

**3 hours**

The course is a study of microcomputer applications and operations in our modern society. Included in the course is an overview of how professional people use microcomputers in planning, communicating written material, calculating, manipulating data, and making graphic presentations. Activities for the course will include the use of word processing, desktop publishing, spreadsheet, database, graphics programs, and statistical programs.

**HLTH 350 – Practicum II**

**1-3 hours**

Practical experience in an area related to major or pattern. Extension of options included in HLTH 250. Prerequisites: HLTH 250 and permission of instructor and program director.

**HLTH 360 – School Health Programs**

**3 hours** (offered spring only) (Health Science majors or Exercise Science Pre-MAE majors only)

This course meets the Community Health Pattern Requirement and the Restricted Health Elective in the Worksite Health Pattern. In this course, we conduct advocacy for Coordinated School Health Programs (CSHPs), design a program plan for a CSHP, prepare a lesson project for Comprehensive School Health Education, review the MO School Assessment Program, and evaluate health education curriculum and materials. Prerequisites: HLTH 245, HLTH 260, HLTH 261.

**HLTH 362 – Environmental Health**

**3 hours** (offered fall only) (Health Science majors only, or consent of program director)

This course meets the major requirements for the BS degree in Health Science. The course actively involves the student in the determination of environmental health concerns. We will examine the impact of the environment on individual and population health, Healthy People 2010 objectives for environmental health, and the sources/etiology, effects, and control measures for selected environmental and personal safety hazards. Prerequisites: HLTH 245, HLTH 260, HLTH 261, HLTH 270.

**HLTH 366 – Community Health**

**3 hours** (Health Science majors only, or consent of program director)

This course meets the major requirements for the BS degree in Health Science. In addition to an overview of the theo-

ries and models of community health/individual and population health, the course will explore issues pertinent to the community health educator: core public health functions (assessment, policy development, assurance), community health assessment/mobilization/promotion, culturally competent health promotion, health education programming in the community setting, and legislative advocacy/grant writing for health education issues. Prerequisites: HLTH 245, HLTH 260, HLTH 261, HLTH 270.

**HLTH 367 – Introduction to Epidemiology**

**3 hours** (offered spring only) (Health Science majors only, or consent of program director)

This course is designed for those students entering the field of health education, medicine, or public health. Increasing an understanding of epidemiological concepts, practices, and methods is a primary focus. Topics covered during the course are history of epidemiology; disease etiology; measures of morbidity and mortality; descriptive means of epidemiology; data uses in the field; study designs; measures of effect; data interpretation issues; screening guidelines; and epidemiological aspects of infectious diseases, work, and the environment. A separate focus will be placed on the practice of analyzing data in epidemiological investigations. Prerequisites: HLTH 245, HLTH 260, HLTH 261, HLTH 270.

**HLTH 370 – Field Experience in Health Science**

**4 hours** (offered summer only) (Health Science majors only)

This course is designed to provide Health Science majors with the opportunity to apply career-oriented skills in an off-campus internship setting for a minimum of 200 contact hours. The student must follow the procedures in the application process before enrolling. The student may not be enrolled in more than one additional class during the field experience. Prerequisites: Consent of advisor and Program Director, Junior standing, minimum 2.5 cumulative and major GPA, select courses completed within pattern.

**HLTH 374 – Independent Study in Health Science**

**1-4 hours**

Individualized study in specialized areas of health science. Open only to Health Science majors. Consent of advisor and Program Director is necessary.

**HLTH 440 – Program Planning and Evaluation in Health**

**3 hours** (offered spring only) (Health Science majors only, or consent of program director)

This course is designed to develop a more complete understanding of the skills and abilities needed by health educators/promoters for program planning, implementation, and evaluation. The student will be exposed to a wide variety of learning activities and discussions that focus on the core competencies for entry level health educators. In addition, topics will be presented that further the concept of planning, implementation, evaluation, and replanning as a cyclic event. Prerequisites: HLTH 245, HLTH 260, HLTH 261, HLTH 270.

**HLTH 450 – Senior Seminar**

**1 hour** (Health Science majors only)

This course is designed to help you evaluate your past educational experience and your future as an exercise/health scientist. Your interests and concerns will largely guide the content of this class. Topics covered are dinner etiquette,

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professional interviewing skills, wardrobe development, appropriate interview questions and answers, financial skills, and portfolio development. Class should be taken one of the last two semesters prior to graduation. Prerequisite: Application for graduation must be filed.

**HLTH 465 – Special Topics in Health**

**1-4 hours**

A course offered periodically with varying content related to health and health promotion. Course requirements will include papers and, at the discretion of the instructor, examinations. With the approval of the student's advisor, course may substitute as appropriate for required major course. May be repeated for total of 6 credits. Prerequisites: Junior or senior status or consent of instructor.

**HLTH 470 – Research in Health Science**

**1-4 hours**

Directed student research in Health Science. Prerequisites: STAT 190, consent of advisor and Program Director.

**HLTH 480 – Worksite Health**

**3 hours (offered spring only) (Health Science majors only, or consent of program director)**

This course meets the BS degree/Worksite Health Pattern Requirements for the Health Science Major. The course will examine worksite health promotion and health protection on the educational, organizational, and environmental levels. The student will design, implement, and evaluate a comprehensive worksite health promotion program and occupational safety and health program; provide a rationale for worksite health promotion and safety programs, and create a comprehensive occupational safety and health manual and corresponding training program. Prerequisites: HLTH 362, HLTH 366.

**HLTH 603 – Seminar in Health Education**

**3 hours**

A review of literature and research will be conducted to analyze current and future health problems pertinent to schools and public health.

COURSE  
DESCRIPTIONS

EXERCISE SCIENCE

INTERCOLLEGIATE PARTICIPATION

Maximum 1 hour credit in each sport toward graduation.

- ES 102 Varsity Football Participation.
- ES 103 Varsity Basketball Participation. (Men and Women)
- ES 104 Varsity Track Participation. (Men and Women)
- ES 105 Varsity Tennis Participation. (Men and Women)
- ES 106 Varsity Golf Participation. (Men and Women)
- ES 107 Varsity Cross Country Participation. (Men and Women)
- ES 108 Varsity Wrestling Participation.
- ES 109 Varsity Baseball Participation.
- ES 111 Varsity Softball Participation.
- ES 112 Varsity Volleyball Participation.

ES 113 Varsity Swimming Participation. (Men and Women)

ES 114 Varsity Soccer Participation. (Men and Women)

ELECTIVE COURSES

**ES 120 – Volleyball**

**1 hour**

Basic skills of power volleyball.

**ES 123 – Judo**

**1 hour**

Judo philosophy, discipline, and etiquette will be introduced together with fundamental throws, pins, falls, and arm bars.

**ES 129 – Faculty/Staff Physical Fitness**

**0 credit**

Self-paced exercise program to improve cardiovascular fitness, muscle strength and endurance, and flexibility. Laboratory tests will monitor individual progress.

Prerequisite: Doctor's permission.

**ES 130 – Beginning Swimming**

**1 hour**

Basic water skills for non-swimmers to develop safety and confidence in water activities.

**ES 131 – Intermediate Swimming**

**1 hour**

Development of proficiency in various swimming strokes and forms of rescue and surface diving. Prerequisite: ES 130 or swimming skill.

**ES 132 – Basic Swimming for Senior Citizens**

**0 credit**

Basic water skills for senior citizens to gain safety and confidence in water activities.

**ES 133 – Lifeguard Training**

**2 hours (offered spring only)**

Course is designed to teach lifeguards the skills and knowledge needed to prevent and respond to aquatic emergencies. Prerequisites: (1) minimum age of 15, (2) tread water for 2 minutes without aid of arms, (3) swim 500 yards (200 yards front crawl with rhythmic breathing and stabilizing kick, 100 yards breaststroke, and 200 yards front crawl with rhythmic breathing and stabilizing kick or breaststroke), and (4) 20 yards front crawl or breaststroke; dive to bottom of pool with retrieval of 10 pound object; swim 10 pound object 20 yards return holding with both hands. Successful completion of all critical course skills and passing required exams with a score of 80% or better could result in American Red Cross certification.

**ES 134 – Lifeguard Training Instructor**

**2 hours (fall only)**

Course is designed to train instructor candidates to teach Lifeguard Training (including first aid and CPR for the professional rescuer, Community Water Safety, and Lifeguarding Instructor Aide). Prerequisites: minimum age of 17, evidence of having completed an Instructor Candidate Training Course, and successful completion of lifeguard training skills, first aid skills, CPR for the Professional Rescuer Skills, and Lifeguard Training knowledge exam with a grade of 80% or better. Successful com-

pletion of the instructor course requirements can result in certification as an ARC Lifeguarding Instructor.

**ES 135 –Water Safety Instructor**

**2 hours** (offered spring only)

This course is designed to train candidates to teach Infant and Preschool Aquatics Program, the seven levels of the Learn to Swim Program, Community Water Safety, and Water Safety Instructor Aide courses. Prerequisites: (1) minimum age of 17, (2) evidence of having completed Fundamentals of Instructor Training Course, (3) successful completion of tests of water safety and swimming skills and knowledge with a minimum grade of 80%.

**ES 143 – Beginning Tennis**

**1 hour**

Fundamental tennis skills, rules, and mechanical principles.

**ES 144 – Intermediate Tennis**

**1 hour (fall only)**

Instruction in intermediate strokes and strategy applied to singles and doubles play. Prerequisite: ES 143 or comparable tennis skill.

**ES 146 – Beginning Racquetball**

**1 hour**

Rules, techniques, and strategy of four-wall racquetball.

**ES 147 – Intermediate Racquetball**

**1 hour**

Instruction in intermediate and advanced racquetball skills and strategies that can be applied in either singles or doubles play. Prerequisite: ES 146 or comparable racquetball skills.

**ES 151 – Irish Celli Dance**

**1 hour**

Activity oriented course providing instruction in Irish dance history, culture, music, and basic dance skills. Fundamental steps and regional styles provide the foundation for various popular “ceile” (party) dances. Safe warm-up/cool-down practice, cardiovascular fitness, and flexibility are emphasized.

**ES 154 – Ballroom Dancing**

**1 hour**

Activity oriented course providing basic instruction in techniques, terminology, and stylization of ballroom dances. Dances regularly included are swing, waltz, cha-cha, foxtrot, and tango.

**ES 156 – Beginning Tap Dancing**

**1 hour**

Activity course providing instruction in tap technique, terminology, and choreography at a beginning skill level. Clogging will also be included.

**ES 157 – Beginning Jazz Dance**

**1 hour**

Activity oriented course providing basic instruction in fundamental jazz dance techniques, terminology, and combinations. Several jazz styles will be experienced.

**ES 158 – Aerobic Dancing**

**1 hour**

Incorporates muscle toning and the development of cardiovascular fitness through the medium of dance. Participants

receive instruction concerning flexibility, warm-up, aerobic dance, and cool down routines.

**ES 159 – Social and Country-Western Dance**

**1 hour (Exercise Science Majors only)**

Activity oriented course providing basic instruction in techniques, stylization, and terminology of country-western dance. In addition to line and couple dances, social dance forms of swing, waltz, and Texas two-step are included.

**ES 167 – Weight Training-Free Weights**

**1 hour**

Scientifically founded isotonic weight training programs; development of muscular strength, endurance, and flexibility.

**ES 168 – Weight Training–Nautilus**

**1 hour**

Scientifically founded isotonic weight training programs; development of muscular strength, endurance, and flexibility utilizing Nautilus equipment.

**PROFESSIONAL PREPARATION COURSES**

**Note:** Analysis courses primarily are designed for Exercise Science majors. Other students **must have** consent of program director **before** enrolling in Analysis courses.

**ES 170 – Analysis of Gymnastics–Men and Women**

**1 hour (Exercise Science majors only)**

The course is designed to prepare exercise science majors to teach as well as perform basic gymnastic skills and routines. Emphasis is on understanding, performing, and analyzing basic moves and skills.

**ES 172–Analysis of Swimming**

**1 hour (Exercise Science majors only)**

The purpose of this course is to provide the exercise science student with the necessary knowledge and skill to analyze and interpret the necessary skills associated with swimming. Consequent to this the student will obtain the necessary skills to teach basic swimming to children grades K-12 within a safe and positive environment.

**ES 173 – Analysis of Football**

**1/2 hour (Exercise Science Majors only)**

The intent of this course is to provide exercise science majors with learning experiences enabling them to develop the necessary pedagogical competencies required to teach and/or coach football. Emphasis is on understanding, performing, and analyzing the various football skills by position.

**ES 174 – Analysis of Basketball**

**1/2 hour (Exercise Science Majors only)**

The purpose of this course is to provide students with learning experiences allowing them to develop the necessary skills required for teaching basketball. Emphasis is placed on understanding, performing, and analyzing the basic fundamentals.

**ES 176 – Analysis of Volleyball**

**1/2 hour (Exercise Science Majors only)**

Introductory course providing instruction in volleyball history, technique, terminology, teaching, and analysis.

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**ES 177 – Analysis of Softball**

**1/2 hour (Exercise Science Majors only)**  
**(fall only)**

Development of softball skills necessary for analyzing and demonstrating purposes in teaching-coaching. Emphasis is on fundamental mechanics and teaching progressions.

**ES 178 – Analysis of Soccer**

**1/2 hour (Exercise Science Majors only)**

The intent of this course is to provide the student with the necessary skills and strategies required for teaching soccer. Emphasis is on understanding, performing and analyzing several basic soccer techniques, then applying these skills to match related situations.

**ES 179--Outdoor Activities**

**1/2 hour (Exercise Science majors only) (Fall only)**

Course is designed to introduce the teaching and supervision of outdoor adventure programming, particularly programs for children and adolescents. Activities include canoeing, outdoor cooking, and emergency situation management. Some Saturday activities are required. Special course fee applies.

**ES 180 – Analysis of Tennis**

**1/2 hour (Exercise Science Majors only)**

Course designed for the development of tennis knowledge beyond the beginning level. Emphasis is on stroke mechanics and analysis as well as performance, terminology, history, rules, and scoring.

**ES 181 – Analysis of Badminton**

**1/2 hour (Exercise Science Majors only)**

Development of badminton skills necessary for analyzing and demonstrating purposes in teaching-coaching. Emphasis is on stroke mechanics and teaching progressions.

**ES 183 – Analysis of Fencing**

**1/2 hour (Exercise Science Majors only)**  
**(fall only)**

The purpose of this introductory course is to provide theoretic and practical experience in foil fencing. Students will be instructed in techniques for teaching and evaluating the fundamentals of foil fencing.

**ES 184 – Analysis of Golf**

**1/2 hour (Exercise Science Majors only)**

The intent of this course is to provide exercise science majors with learning experiences enabling them to develop the necessary pedagogical competencies required for teaching golf. Emphasis is on understanding, performing, and analyzing the basic golf shots.

**ES 185 – Analysis of Weight Training**

**1/2 hour (Exercise Science Majors only)**

The intent of this course is to provide exercise science majors with learning experiences enabling them to develop the necessary pedagogical competencies required to teach weight training.

**ES 186 – Outdoor Venture Activities**

**1/2 hour (Exercise Science Majors only)**

This course is designed to introduce low to medium risk outdoor venture activities that challenge the student's abilities in a non-traditional setting. Activities can include ropes course work, climbing, rappelling, and orienteering. Saturday labs are generally required. Course fee applies.

**ES 187 – Analysis of Wrestling**

**1/2 hour (Exercise Science Majors only)**

The intent of this course is to provide the students with learning experiences enabling them to learn the basics of wrestling. Skill performance, analysis, and mechanics will be emphasized in helping the student develop a better understanding of wrestling.

**ES 188 – Analysis of Racquetball**

**1/2 hour (Exercise Science Majors only)**

This course is designed to develop racquetball skills necessary for analyzing and demonstrating purposes in teaching. Emphasis is on stroke mechanics and teaching progressions.

**ES 189 – Analysis of Track and Field**

**1/2 hour (Exercise Science Majors only)**

This course is designed to develop track and field skills necessary for analyzing and demonstrating purposes in teaching-coaching. Emphasis is on fundamental mechanics and teaching progressions.

**ES 190 – Foundations of Exercise Science**

**3 hours**

Nature, scope, and philosophy of exercise science; career opportunities; professional responsibilities; historical contributions; biological, psychological and sociological interpretations of exercise science.

**ES 191 – Sport Sociology**

**2 hours (spring only, odd calendar years)**

The purpose of this course is to investigate the institution of sport in society. The perspective and procedures of sociology will be used to understand the prevailing form of sport in American society today. Through theoretical and applied studies, the relationship of sport and society will be examined. Prerequisite: ES 190 and SOAN 190.

**ES 200 – Techniques of Aerobic Dance**

**1 hour (Exercise Science Majors only)**

Provides instruction designed to develop aerobic dance competencies and related health and exercise concepts necessary for analyzing and teaching aerobic dance. Emphasis is on learning through practical teaching experiences.

**ES 205 – Community First Aid and CPR**

**2 hours**

Course designed to teach standard First Aid and personal safety skills as well as Cardiopulmonary Resuscitation.

**ES 206 – First Aid and CPR Instructor**

**1 hour**

Knowledge and skill required to effectively instruct CPR courses. Students will receive CPR instructor certification if American Red Cross requirements are met. Prerequisite: ES 205 or current Basic Life Support certification.

**ES 211 – Folk and Social Dance**

**1 hour (Exercise Science Majors only)**

Instruction in beginning and intermediate folk and social dance techniques, stylization and terminology. The unique cultural heritage of a variety of nations will be understood and appreciated.



**ES 212 – Modern Dance**

**1 hour**

Introduction in beginning modern dance techniques, elements of composition and philosophy. Basic movement concepts and approaches to creative expression will be studied.

**ES 214 – Elementary Ballet**

**1 hour**

Introduction to basic ballet techniques, creative composition, and style of ballet.

**ES 215 – Intermediate Ballet**

**1 hour**

Intermediate course to further develop ballet technique, terminology and choreography attained in elementary ballet. Prerequisite: ES 214 or equivalent dance experience.

**ES 232 – Sport Management**

**3 hours** (Exercise Science majors only)

This class provides a foundation for the management of sport organizations. General management skills such as philosophy development, leadership, decision-making, motivation, evaluation, marketing, public relations and risk management are taught. In addition, the class covers legal concerns in the field of exercise science. Special attention is given to writing and the communication process throughout the class.

**ES 235 – Physical Activity for the Young Child**

**2 hours**

Organization, planning, and administration of physical education programs for the elementary schools. Teaching methods, identification of growth and development patterns and their effect on behavior and movements, motivation techniques, and safety in conducting elementary school physical education.

**ES 236 – Creative Dance for Children**

**1 hour**

Introduction to and analysis of developmental movement patterns and activities, creative movement concepts, dance elements, and their interrelationships.

**ES 250 – Practicum I**

**1-3 hours**

Clinical experience in a physical education or coaching related activity. Desirable options are serving as a teacher aid, assisting in the training room or Human Performance Laboratory, supervisory roles in intramurals, assisting in city recreation programs, coaching youth sports, volunteer assistance in public or private schools, church programs, summer camps. Prerequisite: Permission of instructor required and ES 190. Student must be at least junior status.

**ES 256 – Intermediate Tap Dancing**

**1 hour**

Activity course providing instruction in intermediate tap technique, terminology, shorthand tap notation, and choreography. Funk tap and Irish step dancing will be explored. Prerequisite: ES 156 or comparable experience.

**ES 257 – Intermediate Jazz Dance**

**1 hour**

Activity course providing instruction in intermediate jazz technique, terminology, and choreography. Additional jazz styles covered include funk, lyrical, Afro-Haitian and

Broadway/musical comedy. Prerequisites: ES 157 or comparable jazz dance experience.

**ES 261 – Sport Psychology**

**2 hours (spring only, even calendar years)**

This course will focus on both the major premises on which the field of sport psychology is based, and various aspects of individual and group motivation in sport and exercise settings. The emphasis of this course will be on the evolution of sport psychology with regards to traditional topics of personality, anxiety, and arousal, as well as strategies for implementation. Prerequisite: ES 190 and PSYC 166.

**ES 290 – Athletic training Practicum-Low Risk Sports**

**1 hour**

This course is designed to provide students with the opportunity to obtain directed clinical experience in a low risk sport setting from one of the following: Men and women's track, men and women's cross country, men and women's tennis, men and women's swimming, baseball, softball, or cheerleading, depending on the sport availability. Students will apply knowledge and skills learned in the classroom to the prevention, care and rehabilitation of injury to athletes in these low risk sports. Emphasis is placed on the evaluation of skills as defined by the clinical proficiencies delineated and published by the Education Council of the National Athletic Trainer's Association. Prerequisites: Acceptance into the athletic training pattern, consent of instructor, and approval of athletic training staff. May be repeated for a maximum of 4 credits.

**Note:** Theory of Coaching courses are offered every other year on a rotating schedule based on adequate student enrollment. Appropriate analysis class or consent of instructor is required prior to enrollment.

**ES 301 – Theory of Coaching Football**

**1 hour (spring only, odd calendar years)**

To provide a methodology for those students interested in coaching football to organize and implement the total program. Emphasis is on job selection, location, coordination of medical staff and coaches, offensive and defensive schemes, and the kicking game.

**ES 302 – Theory of Coaching Basketball**

**1 hour (spring only, odd calendar years)**

Course provides instruction in coaching techniques of basketball, basketball terminology, history, and on the floor instruction in offense and defense.

**ES 304 – Theory of Coaching Track and Field**

**1 hour (spring only, even calendar years)**

Investigates the history of track and field, coaching and leadership, training theories and their application, meet management, practice planning and organization, event rules, technique, training, and athlete selection.

**ES 307 – Theory of Coaching Volleyball**

**1 hour (spring only, even calendar years)**

Offensive and defensive strategies, practice organization, team drills, scouting, and player management.

**ES 308 – Theory of Coaching Softball**

**1 hour (spring only, odd calendar years)**

Offensive and defensive strategies, practice organization, team drills, and player management.

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**ES 311 – Theory of Coaching Soccer**

**1 hour (spring only, even calendar years)**

Theory and practice in coaching soccer; offensive and defensive skills and strategies; organization and administration.

**ES 330 – Advanced Sport Management**

**3 hours** (offered spring only, odd calendar years) (Exercise Science majors only)

The class is designed to facilitate interdisciplinary learning in the fields of sport and recreation management through use of applied methods. Students are expected to bring knowledge of marketing, law, organizational behavior and finance to the class. Students will have the opportunity to synthesize their knowledge with advanced concepts in the field of sport and recreation management. These concepts will center on problem analysis, problem solving, leadership and event management. Students will apply this knowledge and further their learning through the use of case studies and actual management opportunities.

Prerequisites: ES 232 or permission of instructor.

**ES 334 – Physiological Assessment**

**3 hours** (Exercise Science majors only)

This course is designed to introduce students to the functional assessment of human fitness and performance. Students will be actively involved in the measurement and evaluation of components of body composition, cardiorespiratory, musculoskeletal, and skill-related fitness.

Prerequisites: ES 190 and STAT 190.

**ES 342 – Concepts of Biomechanics**

**3 hours** (Exercise Science or Health Science majors only)

Concepts of Biomechanics investigates the anatomical and mechanical bases of human movement. The anatomical component focuses on the skeletal, articular, and neuromuscular systems as they affect movement. The mechanical component focuses on kinematic and kinetic principles and their relationship to human movement. Prerequisites: ES 190 or HLTH 190, and MATH 186 or higher.

**ES 343 – Motor Learning and Control**

**2 hours (Exercise Science Majors only)**

Investigates the neuropsychological principles and factors affecting the acquisition and retention of motor skills, teaching styles, and the inter-relationship of teaching styles and motor skill acquisition and retention. Course also introduces the student to basic research principles and the problems inherent to data collection and interpretation. Prerequisite: STAT 190, ES 190, and ES 447. NOTE: Must be concurrently enrolled in lab.

**ES 343 – Motor Learning and Control Lab**

**1 hour (Exercise Science Majors only)**

This class is designed to allow the student to have hands on experience with research equipment associated with Motor Learning. Students are expected to engage in mini-research project related to reaction/movement time, anticipation time, kinesthesia, gross body stability, fine motor coordination, tracking, optical impression, multiple-choice reaction time and proprioception. NOTE: Must be concurrently enrolled in lecture. Prerequisites: STAT 190, ES 190 and ES 447.

**ES 344 – Growth and Motor Development**

**3 hours (Exercise Science Majors only)**

This course is an introduction to the physical growth and motor development of children with emphasis on those

systems and body composition changes related to motor performance and exercise stress. During the course, discussion will focus on such topics as the nature of growth and development and implications of growth for motor performance and fitness development. Recommended: BIOL 365, ES 342, and BIOL 315 or BIOL 325. Prerequisite: ES 190.

**ES 345 – Introduction to Exercise Physiology**

**3 hours (Exercise Science Majors only)**

The purpose of this course is to survey the acute and chronic responses and adaptations of the human body to exercise stress. Students will be instructed in techniques for measuring the effects of exercise on the body.

Prerequisite: ES 190 or HLTH 190, BIOL 365 or permission of instructor.

**ES 346 – Microcomputer Applications**

**3 hours**

The course is a study of microcomputer applications and operations in our modern society. Included in the course is an overview of how professional people use microcomputers in planning, communicating written material, calculating, manipulating data, and making graphic presentations. Activities for the course will include the use of word processing, desktop publishing, spreadsheet, database, graphics programs, and statistical programs.

**ES 348 – Adapted Physical Education**

**3 hours (offered spring only, odd calendar years)**

Philosophy and role of physical education for individuals with disabilities. Etiology and its implications for setting up various programs for the exceptional along with specific teaching activities and aids are emphasized.

Prerequisites: ES 235. Recommended: ES 236, or consent of instructor.

**ES 349 – Perceptual-Motor Development for the Developmentally Disabled**

**2 hours**

Diagnosis, mediation, and movement experiences with implications for the innervation of fetal, reflex, and perceptual-motor processes in the developing child.

**ES 350 – Practicum II**

**1-3 hours**

Clinical experience in a physical education or coaching related activity. Extension of options included in ES 250. Prerequisite: ES 250 and permission of instructor required.

**ES 370 – Field Experience in Exercise Science**

**4 hours (Exercise Science Majors only)**

**(offered summer only)**

This course is designed to provide Exercise Science majors with the opportunity to apply career-oriented skills in an off-campus internship setting for a minimum of 200 contact hours. The student must follow the procedures in the application process before enrolling. The student may not be enrolled in more than one additional class during the field experience. Prerequisites: Consent of advisor and Program Director, Junior standing, minimum 2.5 cumulative and major GPA, select courses completed within pattern.

**ES 375 – Independent Studies in Exercise Science**

**1-4 hours (Exercise Science Majors only)**

Individualized study in specialized areas of Exercise science. Open only to Exercise Science majors. Consent of advisor and program director is necessary. Prerequisite: ES 190.

**ES 390 – Athletic Training Practicum-High Risk Sports**

**1 hour (Exercise Science majors only)**

This course is designed to provide students with the opportunity to obtain directed clinical experience in a high risk sport setting from one of the following: Football, men’s basketball, women’s basketball, men’s soccer, women’s soccer, wrestling, or women’s volleyball, depending on the sport availability. Students will apply knowledge and skills learned in the classroom to the prevention, care and rehabilitation of injury to athletes in these high risk sports. Emphasis is placed on the evaluation of skills, and defined by the clinical proficiencies delineated and published by the Education Council of the National Athletic Trainer’s Association. Prerequisites: Acceptance into the athletic training pattern, consent of instructor, and approval of athletic training staff. May be repeated for maximum of 4 credits.

**ES 430 – Principles of Coaching**

**2 hours (Exercise Science Majors only)**

**(offered fall only, odd calendar years)**

The intent of this course is to develop students’ knowledge and skills for coaching sports. The course is designed to reflect and incorporate several humanistic and social values. Although theory-based, the course is task-oriented for practical application.

**ES 431 – Injury Care of Active People**

**2 hours (Exercise Science Majors only)**

Techniques, principles and theories underlying prevention, care and rehabilitation of injuries to athletes. Supportive taping and injury evaluation procedures are taught in a lab situation. Prerequisite: BIOL 365 and ES 190.

**ES 433 – Therapeutic Modalities**

**3 hours (Exercise Science Majors only)**

Theories, principles and techniques of those physical therapy modalities used in treatment of injuries to athletes including water, electricity, and massage. Prerequisite: ES 431 or ES 500.

**ES 434 – Physical Rehabilitation for Athletic Injuries**

**3 hours (Exercise Science Majors only) (fall only)**

Theory and techniques of physical rehabilitation for injuries to athletes including use of isokinetics, PNF, and Cryokinetics. Prerequisite: ES 431 or ES 500, BIOL 315 or BIOL 325.

**ES 435 – Training Room Management**

**3 hours (Exercise Science Majors only)**

**(spring only, even calendar years)**

Designed for athletic training students. Prerequisites: ES 431 or ES 500; consent of instructor.

**ES 436 – Athletic Injury Evaluation**

**3 hours (Exercise Science Majors only) (fall only)**

Students will acquire competency and proficiency in the knowledge, techniques, and skills of assessment of structural, joint, muscle, and nerve problems that are commonly involved with injuries to athletes. Prerequisites: ES 431 or ES 500.

**ES 447 – Data Interpretation in Exercise Science**

**2 hours (Exercise Science Majors only)**

The application of fundamental statistical processes as they apply to the collection, analysis, and interpretation of exercise science data are discussed. Emphasis is placed on the practical application of statistical procedures for research purposes. Prerequisites: STAT 190, ES 346. Recommended: ES 334.

**ES 450 – Senior Seminar**

**1 hour (Exercise Science Majors only)**

Class is designed to allow students to gain valuable knowledge and information relative to interview procedures, resume construction, statement of career goals, types of application letters, and portfolio development. Budget planning, tax calculation, credit card risk, and various forms if insurances will also be covered. Prerequisite: Application for graduation must be filed.

**ES 465 – Special Topics in Exercise Science**

**1-4 hours (Exercise Science Majors only)**

A course offered periodically with varying content related to Exercise Physiology, Cardiac Rehabilitation or Pre-physical Therapy. Course requirements will include papers and, at the discretion of the instructor, examinations. With the approval of the student’s advisor and the program Director, course may substitute as appropriate for one of the courses in the student’s pattern.

**ES 470 – Research in Exercise Science**

**1-4 hours (Exercise Science Majors only)**

Directed student research in Exercise Science.

Prerequisites: STAT 190, ES 447; consent of advisor and program director.

**ES 500 – Athletic Injuries**

**3 hours (Exercise Science Majors only) (spring only)**

The cooperation of coaches, athletic trainers, school nurses, athletic directors and physicians in the hygienic management of athletics is considered with an emphasis on the prevention, care and rehabilitation of athletic injuries. A survey of literature is conducted in various medical fields related to sport. Prerequisite: BIOL 365 or concurrent enrollment.

**ES 501 – Advanced Exercise Physiology**

**3 hours (Exercise Science Majors only) (spring only)**

Fundamental physiological processes resulting from acute and chronic exercise stress. Emphasis is on integrating systems and organs into a functional whole. Laboratories provide experience in evaluating exercise stress by modern methods and equipment. Prerequisite: Either BIOL 315 or BIOL 325, BIOL 365, ES 345, or permission of instructor.

**ES 502 – Social Problems of Sport**

**3 hours (Exercise Science Majors only)**

The purpose of this course is to investigate sport from a social perspective. It will focus upon the role of sport in society, the specificity of American sport, its relationship to other institutions in the culture, functional and dysfunctional characteristics, and the extent to which sport is an effective agent for social change.

**ES 503 – Psychology of Sport and Exercise**

**3 hours (Exercise Science Majors only)**

Current topics and issues pertinent to psychological aspects of sport will be considered. Specific attention will

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focus on the development of effective cognitive control strategies for optimal sport performance; development of an understanding of the leadership/followership process in sport; and, special consideration of such topics as aggression, motivation and perception. The course experience will focus on the necessary link between science and sport.

**ES 505 – Advanced Biomechanical Analyses**  
**3 hours (Exercise Science Majors only)**

Students are introduced to the principle mechanical analysis of sport activities. Students will be taught a scientific and applied approach to analysis of human movement. Prerequisites: BIOL 365 and ES 342. Recommend: MATH 157 and STAT 190.

**ES 509 – Advanced Athletic Training**  
**3 hours (Exercise Science Majors only)**  
**(spring only, odd calendar years)**

Advanced information dealing with injuries to athletes including analysis of joint injury mechanisms, isokinetic rehabilitation techniques, tape support of injured joints, athletic nutrition analysis, evaluation of specific injury situations and post injury conditioning. Prerequisites: ES 342, ES 431.

**ES 515 – Exercise Testing and Prescription**  
**3 hours (Exercise Science or Health Science Majors only)**

This course is designed to train exercise scientists in the skills of assessment, planning, implementation, and evaluation relevant to the development of individualized exercise prescriptions. Prerequisites: ES 345

**ES 532 – Cardiac Pathophysiology**  
**3 hours (Exercise Science majors only)**

An advanced course in cardiac physiology and the mechanisms of cardiac, pulmonary, and some metabolic disease. Includes extensive work on electrocardiogram interpretation, cardiac pharmacology, and disease intervention programs. Prerequisites: ES 345 and BIOL 325, or consent of instructor.

**ES 545 – Exercise Physiology Seminar**  
**3 hours (Exercise Science Majors only) (spring only)**

Discussion of current topics in exercise physiology designed to integrate all areas of human performance. Prerequisites: ES 470, ES 345, ES 501.

**ES 608 Management of Instruction**  
**3 hours**

Management of Instruction investigates the techniques of effective teaching and relationships between teacher and learner. The course is designed to allow the teaching internship in the Master of Arts in Education to gain practical experience necessary for becoming an effective instructor of physical education. The purpose is to provide students with a systematic understanding of how to structure knowledge in physical education.

**ES 647 – Analysis and Interpretation of Data**  
**3 hours**

The methods of data analysis employed in health and physical education research such as t-tests, chi-square, correlations, analysis of variance and multiple regression analysis are examined.

**ES 649 – Research Methods in Health and Exercise Science**

**3 hours**

The course focuses upon research procedures utilized in experimental, descriptive, historical and other methodologies as they apply to health.

**ES 650 – Individual Study in Health and Exercise Science**

**3 hours**

Written investigation of a problem within Health, Physical Education, Recreation, or Coaching under the supervision of a faculty advisor.

## FACULTY CREDENTIALS

**Note:** Date in parentheses indicates year of employment at Truman. \*Indicates graduate faculty.

**Jeffrey Arabas**

Director of Aquatics, Instructor in Health and Exercise Sciences  
BS, Central Connecticut State University; MA, Northern Arizona University. (1999)

**Alf Bilbao**

Head Men's Soccer Coach; Instructor in Health and Exercise Sciences.  
BS, Northeast Missouri State University. (1998)

**Evonne Bird**

Instructor in Health and Exercise Sciences  
BS, Eastern Montana College; MS, Texas Tech University. (1995)

**Michael Bird**

Associate Professor of Health and Exercise Sciences  
BA, MS, Purdue University; PhD, University of North Carolina-Greensboro. (1995)

**Michelle Boyd**

Head Athletic Trainer, Instructor in Health and Exercise Sciences  
BS, University of Illinois-Urbana; MS, University of Pittsburgh. (1994)

**Mike Cannon**

Head Women's Soccer Coach; Instructor in Health and Exercise Sciences  
BA, Northeast Missouri State University. (1993)

**John Cochrane**

Head Women's Cross-Country and Track Coach;  
Instructor in Health and Exercise Sciences  
BS, Iowa State University; MA, Northeast Missouri State University. (1986)

**Mary Lou Cole**

Instructor in Health and Exercise Sciences  
BS, MAE, Truman State University. (2000)

**HUMAN  
POTENTIAL  
AND  
PERFORMANCE**

**Matt Copeland**  
Assistant Football Coach; Instructor in Health and Exercise Sciences  
BA, Truman State University; MAE, Truman State University. (1997)

**Carolyn Cox**  
Associate Professor of Health and Exercise Sciences  
BS, Slippery Rock University of Pennsylvania; MEd Shippensburg University of Pennsylvania; PhD, The Pennsylvania State University. (1994)

**Timothy Deidrick**  
Assistant Men's Basketball Coach, Instructor in Health and Exercise Sciences  
BS, MAE, Truman State University. (2000)

**Marne Fauser**  
Assistant Women's Basketball Coach, Instructor in Health and Exercise Sciences  
BS, Truman State University. (2000)

**Troy Garrett**  
Assistant Athletic Trainer, Instructor in Health and Exercise Sciences  
BS, Truman State University; MS, University of Oklahoma. (2000)

**Stephanie Horton**  
Assistant Athletic Trainer, Instructor in Health and Exercise Sciences  
BS, The University of Tulsa; ME, Iowa State University. (2001)

**J. Seth Huston**  
Head Swim Coach, Instructor in Health and Exercise Sciences  
BSE, University of Tampa, MSE, Texas Christian University (1994)

**Melody Jennings**  
Instructor in Health and Exercise Sciences  
BSE, MA, Northeast Missouri State University. (1984)

**Elizabeth Jorn**  
Instructor in Health and Exercise Sciences  
BS, MAE, Truman State University. (2000)

**Pete Kendall**  
Head Men's and Women's Tennis Coach, U.S.P.T.A.; Instructor in Health and Exercise Sciences  
BA, William Penn College; MA, Ball State University. (1992)

**Alexander Koch**  
Assistant Professor of Health and Exercise Sciences  
BS, MS, Appalachian State University; PhD, University of Kansas. (2000)

**Christopher Lantz**  
Associate Professor of Health and Exercise Sciences\*  
BA, West Virginia Wesleyan College; MA, University of Northern Carolina-Chapel Hill; PhD, West Virginia University. (1995)

**Regina Lindhorst**  
Assistant Professor of Health and Exercise Sciences  
BSE, MA, Northeast Missouri State University; Graduate Study, University of Wisconsin. (1964)

**Keeth Matheny**  
Assistant Football Coach; Instructor in Health and Exercise Sciences  
BS, University of Florida; MS, University of Arizona. (1999)

**Jerry Mayhew**  
Professor of Health and Exercise Sciences\*  
BS, Appalachian State University; MS, PhD, University of Illinois. (1975)

**Colleen Murphy**  
Assistant Women's Swim Coach;  
Instructor in Health and Exercise Sciences  
BA, Oakland University; MA, University of Kentucky. (1999)

**Matthew Nelson**  
Assistant Football Coach;  
Instructor in Health and Exercise Sciences  
BS, Northeast Missouri State University; MA, Truman State University. (1999)

**James Padfield**  
Assistant Professor of Health and Exercise Sciences.  
BS, MS, University of Utah; PhD, University of Missouri-Columbia (1996).

**Becky Pike**  
Assistant Women's Volleyball Coach; Instructor in Health and Exercise Sciences  
BA, The College of William and Mary; MA, Murray State University. (1997)

**Fontaine C. Piper**  
Professor of Health and Exercise Sciences; Director of Health and Exercise Sciences\*  
BSE, Northeast Missouri State University; MS, Southern Illinois University; EdS, Northeast Missouri State University; PhD, University of Illinois. (1971)

**Edward Schneider**  
Head Men's Track and Cross Country Coach; Instructor in Health and Exercise Sciences  
BSE, MA, Northeast Missouri State University. (1974)

**Jack Schrader**  
Head Men's Basketball Coach; Instructor in Health and Exercise Sciences  
BA, Arizona State University; MA, Northeast Missouri State University. (1994)

**David Schutter**  
Head Wrestling Coach; Instructor in Health and Exercise Sciences  
BS, Indiana State University. (1991)

**Larry Scully**  
Head Baseball Coach, Instructor in Health and Exercise Sciences  
BA, Western Kentucky University; MSS, United States Sports Academy. (2000)

**HUMAN  
POTENTIAL  
AND  
PERFORMANCE**

**John Sloop, IV**  
Assistant Men's Basketball Coach; Instructor in Health and Exercise Sciences  
BS, Maryville University; Graduate Study, St. Louis University. (1995)

**Mathew Steinberg**  
Assistant Football Coach; Instructor in Health and Exercise Sciences  
BS, MEd, North Dakota State University. (1995)

**Beverly Triana-Tremain**  
Associate Professor of Health and Exercise Science  
BS, East Texas State University; MA, PhD, Texas Woman's University. (1995)

**Qi Wang**  
Head Volleyball Coach; Instructor in Health and Exercise Science.  
BEd, Beijing University of Physical Education of China; MA, Eastern New Mexico University (1997).

**John Ware**  
Head Football Coach; Instructor in Health and Exercise Science  
BA, Drake University; MS, Northeast Missouri State University. (1986)

**JoAnn Weekley**  
Assistant Professor of Health and Exercise Science  
BSE, MA, Northeast Missouri State University. (1966)

**Dan Zimmer**  
Director of Intramurals; Instructor in Health and Exercise Science  
BSE, MA, Northeast Missouri State University. (1988)

**NURSING**

**DEGREES OFFERED**

Bachelor of Science in Nursing

**UNDERGRADUATE MAJOR**

Nursing

The curriculum is designed to prepare beginning practitioners of professional nursing who will provide safe, effective nursing care to patients and clients of all ages in a variety of health care settings—hospital, home, community. It is characterized by a liberal education foundation at the lower level on which the upper division Nursing major is built. Lower division courses are foundational and are drawn from the sciences and humanities disciplines. The upper division courses provide knowledge of the theory and practice of Nursing. Concomitant to them are opportunities for courses which enhance the Nursing component, add depth and scope to the core curriculum, and/or promote a more cosmopolitan individual. The baccalaureate nursing graduate is prepared to function as a generalist in beginning positions in all areas of nursing practice, including maternal, child, mental, adult, and community health nursing. The curriculum provides a foundation for graduate study in Nursing. Graduates who meet the requirements of section 335.066 of the State of Missouri Nursing Practice Act are eligible to apply for the registered nurse licensing examination. The Nursing Program is accredited by the National

League for Nursing, the Missouri State Board of Nursing and has preliminary approval by the Commission on Collegiate Nursing Education.

**ADMISSION TO NURSING**

Only a limited number of Nursing Program applicants are accepted into the program. The Nursing Admissions Committee seeks to select the most qualified applicants for admission.

In addition to acceptance to the University, applicants to the Nursing major must be accepted by the Nursing program. A special application for admission to Nursing is available from the Nursing office. The completed application and a summary of career goals should be sent directly to Nursing Student Affairs Committee. As a part of the admissions process, the Nursing Student Affairs Committee reviews transcripts and test scores, and places applicants at the appropriate level in the program based on the student's qualifications and space availability.

**NURSING**

**BACHELOR OF SCIENCE IN NURSING**

	Semester Hours
<b>Liberal Studies Program Requirements</b> . . . . .	<b>41-62</b>
<b>Missouri Statute Requirement</b> . . . . .	<b>1-3</b>
<b>Required Support Courses</b> . . . . .	<b>15-29</b>
BIOL 100 Biology** . . . . .	4
BIOL 303 Anatomy and Physiology . . . . .	5
CHEM 100 Chemistry for Contemporary Living** . . . . .	4
ED 250 Life Span Development . . . . .	3
PHRE 188 Ethics** . . . . .	3
PHYS 100 Concepts in Physics** . . . . .	4
PSYC 166 General Psychology** . . . . .	3
STAT 190 Basic Statistics** . . . . .	3
**May be used to fulfill LSP requirements.	
<b>Bachelor Of Science Requirements</b> . . . . .	<b>9</b>
BIOL 204 Introductory Microbiology . . . . .	3
BIOL 353 Pathophysiology . . . . .	3
HPP 311 Human Nutrition . . . . .	3
<b>NURSING MAJOR REQUIREMENTS.</b> . . . . .	<b>50</b>
NU 180 Introduction to Human Care Nursing . . . . .	3
NU 221 Nursing Informatics . . . . .	1
NU 240 Nursing Therapeutics I . . . . .	3
NU 280 Nursing Therapeutics II . . . . .	3
NU 310 Pharmacotherapeutics . . . . .	2
NU 325 Physiological Processes . . . . .	5
NU 355 Gerontological Nursing . . . . .	2
NU 365 Chronic Illness . . . . .	2
NU 375 Maternal/Neonatal Nursing . . . . .	4
NU 385 Child/Family Nursing . . . . .	4
NU 410 Introduction to Nursing Research** . . . . .	3
NU 425 Community Mental Health Nursing** . . . . .	5
NU 445 Clinical Elective . . . . .	2
NU 470 Care Coordination . . . . .	2
NU 475 Critical Care Nursing . . . . .	3
NU 485 Rural Public Health Nursing** . . . . .	5
Capstone Experience	
NU 498 Professional Socialization . . . . .	1
Electives to Total . . . . .	<b>129</b>

**SUGGESTED PROGRAM**

**FRESHMAN YEAR-FALL SEMESTER**

Freshman Program	1
BIOL 100 Biology	4
CHEM 100 Chemistry for Contemporary Living	4
PSYC 166 General Psychology	3
MATH Requirement	3
NU 221 Nursing Informatics	1
	<b>16</b>

**SPRING SEMESTER**

NU 180 Introduction to Human Care Nursing	3
PHYS 100 Concepts in Physics	4
ENG 190 Writing as Critical Thinking	3
COMM 170 Fundamentals of Speech	3
History Mode of Inquiry	3
Personal Well-being Requirement	2
	<b>15</b>

**SOPHMORE YEAR-FALL SEMESTER**

NU 240 Nursing Therapeutics I	3
HPP 311 Human Nutrition	3
BIOL 303 Anatomy and Physiology	5
ED 250 Life Span Development	3
Foreign Language Requirement	3-4
	<b>17-18</b>

**SPRING SEMESTER**

NU 280 Nursing Therapeutics II	3
BIOL 353 Pathophysiology	3
MATH 194 Liberal Arts and Sciences Calculus	3
Foreign Language Requirement	3-4
BIOL 204 Introductory Microbiology	3
	<b>15-16</b>

All of the following courses must be completed before entering the junior level nursing courses: BIOL 100, BIOL 303, BIOL 204, BIOL 353, CHEM 100, HPP 311, HPP 250, NU 180, NU 240, NU 280, PHYS 100, PSYC 166, and Elementary Functions Math requirement.

**JUNIOR YEAR-FALL SEMESTER**

NU 310 Pharmacotherapeutics	2
NU 325 Physiological Processes	5
NU 355 Gerontological Nursing	2
HIST 298 Am. Instit. History*	1
Interdisciplinary Writing Enhanced Junior Seminar	3
PHRE 188 Ethics	3
Elective	1
	<b>17</b>

\*This is only one of the options which meet the Missouri Statute requirement. Refer to the Bachelor's Degrees section for specific requirements.

**SPRING SEMESTER**

NU 375 Maternal/Neonatal Nursing	4
NU 385 Child/Family Nursing	4
NU 365 Chronic Illness	2
STAT 190 Basic Statistics	3
Aesthetic: Fine Arts Mode of Inquiry	3
	<b>16</b>

**SENIOR YEAR-FALL SEMESTER**

NU 425 Community Mental Health Nursing (Communication Mode of Inquiry)	5
NU 445 Clinical Elective	2
NU 410 Introduction to Nursing Research	3
Aesthetic: Literature Requirement	3
Elective	3
	<b>16</b>

**SPRING SEMESTER**

NU 485 Rural Public Health Nursing	5
NU 470 Care Coordination	2
NU 475 Critical Care Nursing	3
NU 498 Professional Socialization	1
Intercultural Requirement	3
Historical Mode of Inquiry	3
	<b>17</b>
	<b>129</b>

**NURSING ACADEMIC REQUIREMENTS**

**Cumulative and Nursing Major GPA:**

To remain in the program, the following policies apply to all students who have been accepted in the Nursing Program:

- At the end of the Freshman year and every successive end of semester, students must have a cumulative grade point average of 2.75 or above.
- At the end of the Sophomore year and every successive end of semester the student.
  - Must have a grade point average of 2.50 or above for Nursing Major Requirements.
  - Must have achieved a "C" or better grade in all Required Support and BS requirements as well as NU 180.
- For the Nursing Major Courses NU 240, 280, 310, 325, 355, 365, 375, 385, 425, 445, 470, 475, 485.
  - Must attain a minimum of a "C" grade competency on all examinations.
  - Must attain a "C" or better to advance within the Nursing Major Requirements. (Also applies to NU 180, NU 221, NU 410, and NU 498.)

**Progression Policies**

Following enrollment in junior level courses, if a student's overall GPA falls below 2.75 or the overall Nursing Major requirements GPA falls below 2.50, the student will be continued for one semester on probation. A probation contract is to be completed and submitted for approval by the academic advisor, course coordinator, and the Director of Nursing.

Any student who withdraws from or fails to complete any one of the following Nursing major courses will not be eligible to continue as a Nursing major: NU 240, 280, 310, 325, 355, 365, 375, 385, 470, 475, 485, 425, 445.

Students should be aware that space availability in nursing courses limits change of program opportunities.

**Comprehensive Examinations**

All students are required to take a national normed exam during the junior and senior year. The test completed in the senior year is considered the Senior Comprehensive Exam. Students must achieve at a pre-established score or will be required to complete an approved review program at a pre-determined level to pass senior-level clinical nursing courses.

## HUMAN POTENTIAL AND PERFORMANCE

### Graduation

- Must have a nursing major requirements cumulative grade point average of 2.50 or above.
- Must have a total cumulative grade point average of 2.50 or above.
- Must have a "C" or better in all Nursing courses.

### Special Circumstances

Occasionally circumstances alter a student's ability to achieve goals within a specified time frame. If an unusual problem should occur, the student is to contact his/her advisor in order to explore the student's options. A petition which enables the student to explain circumstances surrounding a problem is available from advisors.

Each student's situation is considered on an individual basis. The procedure is to meet with the advisor and to petition for faculty approval, clearly stating the rationale for the request. Failure to meet all academic requirements of the nursing program may result in withdrawal from the nursing major.

### Dropping Back

Students who decide they would like to drop back to another class are advised that space availability and each student's pattern of achievement are major factors in the approval of such a change. Competition for space in each class mandates that, as spaces become available, they are filled with those most qualified. Usually this means that a qualified student will be advanced from a lower class.

There are situations, however, where it is justifiable that a student drops back.

### Reinstatement

Students who are requesting to be reinstated into the nursing program must submit the following information to the Student Affairs Committee:

- A new admission/application form.
- One letter of recommendation from Truman faculty or academic advisor.
- An up-to-date transcript.
- A letter (in lieu of petition) regarding resolution of problems that necessitated withdrawal. Additional information may be required to support problem resolution (i.e. letter of recommendation from employer or copy of employment evaluation). These materials are to be sent to the Student Affairs Committee.

### Special Equipment

Nursing students will be expected to have the following equipment: tape recorder, stethoscope, sphygmomanometer, complete uniform, watch with capability for measuring seconds, bandage scissors, name pin, pen light, malpractice insurance, and access to an automobile (beginning with the fall semester of the junior year).

### Health Policy

Prior to initial entry into clinical courses, students are required to demonstrate compliance with nursing program health policies as outlined in the Nursing Program Student Handbook. Students absent from the program for more than one (1) year are required to submit updated evidence of health status. All students in clinical courses are instructed in the use of procedures for the prevention of transmission of infectious diseases.

### Missouri State Board of Nursing Licensure Information

According to Section 335.066, Missouri Statutes, completion of Nursing Program requirements does not guarantee eligibility to write the licensure examination (for the complete provisions of 335.066, see Nursing Program Student Handbook). Applicants for Registered Nurse licensure in Missouri must be "at least nineteen years of age, of good moral character and have completed at least the high school course of study, or the equivalent thereof as determined by the state board of education, and have successfully completed the basic professional curriculum in an accredited school of nursing" (Section 355.046, Missouri Statute).

### Additional Expenses

- Clinical Course fees
- Community Health travel expense
- Field trip travel
- Student Nurses Association participation
- School Pin, upon graduation
- Licensure, following graduation

### Additional Requirements

Agencies where students are assigned for clinical experiences may have additional requirements of students including completion of a criminal background check. Students must meet Missouri State Board of Nursing requirements for functional abilities.

### Registered Nurse Application

Registered Nurse applicants should initiate the university admissions process as outlined for all students. Upon receipt of the application, an appointed faculty advisor for RN students will work with applicants throughout the Nursing placement process. If the applicant is accepted, the advisor will continue to assist the RN in planning and carrying out the educational program. Registered nurse students are required to do the following:

- Meet the academic policies of the program.
- Provide evidence of current RN licensure in Missouri
- Complete University Liberal Arts and Sciences Core requirements.\*
- Complete required support courses, BS degree liberal arts and sciences courses, and nursing major required courses.\*
- Be formally admitted to Nursing before applying to take validation examinations.
- Applications for validation exams are due by March 1 of each year.
- Contract for dates of validation examinations and graduation.

\*Transfer of credit policy is applicable

Placement into the Program is determined on the basis of available space and review of applicants' materials. Registered Nurses have the option of seeking advanced standing through validation examinations and submission of a portfolio. Through this process, the registered nurse may demonstrate competency in some of the instructional areas included in freshman, sophomore and/or junior level nursing courses of the curriculum.

All Nursing course validation examinations are given through the Nursing Program and students pay a set fee for each examination. Students must have completed discipline-directed and BS degree liberal arts and sciences courses prior to applying for validation examinations of junior level courses.



Validation examinations must be completed in sequence with a minimum score at a pre-established level. A clinical exam may be required for Registered Nurses who have not practiced nursing in the past four years.

Course syllabi and study guides are available to students at a minimal charge. A fee of \$10 per credit hour will be charged for validation process.

**BSN PROGRAM FOR REGISTERED NURSES  
AT TRUMAN**

Credit possible through the validation process

NLN Mobility Profile II Examinations

	Credit Hours
NU 325 Physiological Processes . . . . .	.5
NU 310 Pharmacotherapeutics . . . . .	.2
NU 375 Maternal/Neonatal Nursing . . . . .	.4
NU 385 Child/Family Nursing . . . . .	.4
NU 425 Community Mental Health . . . . .	.5
Total credit possible by examination . . . . .	.20

Credit by portfolio

NU 180 Introduction to Human Care Nursing . . . . .	.3
NU 240 Nursing Therapeutics I . . . . .	.3
NU 280 Nursing Therapeutics II . . . . .	.3
Total Credit possible by portfolio . . . . .	.9

Total credit possible by validation process . . . . .

Nursing Credits to take at Truman

NU 221 Nursing Informatics . . . . .	.1
NU 410 Introduction to Nursing Research . . . . .	.3
NU 428 Human Care Nursing . . . . .	.3
NU 470 Care Coordination . . . . .	.2
NU 485 Rural Public Health Nursing . . . . .	.5
Select from the following to total 21 credits:	
NU 355 Gerontology . . . . .	.2
NU 365 Chronic Illness . . . . .	.2
NU 428 Nursing Assessment . . . . .	.3
NU 445 Clinical Elective . . . . .	.2
NU 475 Critical Care Nursing . . . . .	.3
NU 498 Professional Socialization . . . . .	.1

Total Nursing credits . . . . .

Liberal Studies . . . . .

Elective . . . . .

Missouri Statute . . . . .

Total Credit Hours for BSN Degree . . . . .

**HONORS PROGRAM**

**Eligibility:**

1. Maintain a cumulative GPA and a nursing GPA of 3.50.
2. Produce a scholarly paper or project to be presented in a public seminar.
3. Achieve above the 50th percentile on the program comprehensive examination.
4. Receive approval of a majority of the nursing faculty.

# COURSE DESCRIPTIONS

**NU 180 – Introduction to Human Care Nursing  
3 hours (offered fall, spring)**

Content focuses on increasing student’s knowledge concerning the historical evolution of nursing and definition, scope and uniqueness of nursing practice and nursing as a profession. The structure and reform of the health care system and health care issues confronting nurses will be examined. Concepts presented are considered within the context of nursing as a human science, with human care nursing as the central focus of the course. Critical analysis of caring and curing as opposing or complementary aspects of the health care system is emphasized.

**NU 221 – Nursing Informatics  
1 hour**

Students will be given the opportunity to explore present and potential impact of informatics on the discipline and practice of nursing, the health care delivery system, and the client. In laboratory settings, students will explore various methods of electronic communication, information retrieval and analysis, and presentation using technologies such as word processing, data management options, CD-ROM, Internet, and other applications. Health information systems for the management of health care data will be examined.

**NU 240 – Nursing Therapeutics I  
3 hours (offered fall semester)**

Nursing Therapeutics I introduces holistic caring strategies through integration of concepts of communication, client assessment, and nursing therapeutics. Emphasis is placed on transpersonal interactions between the nurse and client. Students will utilize the nursing process and the Science of Human Care Nursing to apply didactic material through clinical simulation.

**NU 280 – Nursing Therapeutics II  
3 hours (offered spring semester)**

Nursing Therapeutics II is a continuation of the concepts taught in Nursing Therapeutics I. The focus is on increasingly complex therapeutic strategies utilizing experiential learning opportunities through clinical simulation. Prerequisites: NU 180 and NU 240.

**NU 310 – Pharmacotherapeutics  
2 hours (offered fall only)**

Students are introduced to physiological and biochemical principles concerned with the actions of pharmacological agents. Therapeutically important classes of drugs are discussed in detail. Implications of drug therapy for nursing and health care are emphasized. Application of pharmacological principles is integrated with individualized caring strategies through simulated NCCA experiences. Prerequisite: Junior status in the Nursing Program.

**NU 311 – Human Nutrition  
3 hours (offered spring only)**

Application of nutrition fundamentals essential to health from a physiological point of view; nutrient requirements, food sources and adequate diet selection. May not be taken for credit by students who have successfully passed HPP 150. Prerequisites: CHEM 120, CHEM 121, CHEM 320 and BIOL 303 or BIOL 315, or approval of instructor.

**HUMAN  
POTENTIAL  
AND  
PERFORMANCE**

HUMAN  
POTENTIAL  
AND  
PERFORMANCE

**NU 325 – Physiological Processes**

**5 hours (offered fall, spring)**

Students will utilize the Science of Human Care Nursing in the provision of care for clients, families, and aggregates with actual or potential physiological alterations in acute care and community setting. Concepts of illness, illness prevention, and health promotion throughout the lifespan will be presented in the context of healing and caring nursing practice. Prerequisite: Junior status in the Nursing Program.

**NU 355 – Gerontological Nursing**

**2 hours (offered fall, spring)**

Students are introduced to the care of older clients experiencing the aging process and to the health care needs related to aging. The Science of Human Care Nursing is applied in regard to needs of older adults as survivors. Vulnerable aggregates among this population, such as the old-old and the frail elderly will be explored. Prerequisite: Junior status in the Nursing Program.

**NU 365 – Chronic Illness**

**2 hours (offered spring only)**

This course will explore the impact of chronic conditions on clients, families, and communities. The Science of Human Care Nursing will be utilized to examine physiological and psychosocial concerns as related to chronic illness. Students will have opportunities to relate didactic concepts to lived human experiences through selected clinical opportunities. Prerequisite: Junior status in the Nursing Program.

**NU 375 – Maternal/Neonatal Nursing**

**4 hours (offered fall, spring)**

Concepts of human development and family-centered care are integrated in the nursing care of obstetrical, neonatal, and gynecological clients. Factors impacting the birth experience, maternal, neonatal and women's reproductive health will be explored. Students will utilize the nursing process and the Science of Human Care Nursing to apply didactic material throughout clinical learning opportunities. Prerequisite: Junior status in the Nursing Program.

**NU 385 – Child/Family Nursing**

**4 hours (offered fall, spring)**

Concepts of the Science of Human Care Nursing, family, and child development are integrated with the nursing care of well and ill children and adolescents. Factors impacting the health of the child and family will be explored. Students will utilize the nursing process and the Science of Human Care Nursing to apply didactic material throughout clinical learning opportunities. Prerequisite: Junior status in the Nursing Program.

**NU 410 – Introduction to Nursing Research**

**3 hours (offered fall, spring)**

Building upon critical thinking skills and the problem-solving approach utilized in earlier courses, this course focuses on the research process applied to nursing, on the development and writing of a research proposal. As a writing enhanced course, students will use writing as a method of communicating research information to an audience of research consumers. The relationships among nursing theory, research and practice are discussed and analyzed. Nursing theory, research and practice are evaluated within a framework of the fundamental patterns of knowing in nursing. Writing assignments emphasize criti-

cal evaluation of research, and understanding of research methods. This course meets the Writing-Enhanced requirement. Prerequisite: STAT 190 or faculty approval.

**NU 420 – Practicum in Nursing Research**

**1-3 hours (offered fall, spring)**

Application of the research process to complete research projects which focus on nursing and/or health-related problems. Prerequisites: NU 410 and faculty approval.

**NU 425 – Community Mental Health Nursing**

**5 hours (offered fall, spring)**

This course will provide integration of the science of human care nursing, caring communication, and the framework of psychiatric/mental health nursing. The focus will be illness, illness prevention and health promotion for individuals, families, groups and aggregates experiencing actual or potential alterations in mental health. The process of caring communication will be analyzed and practiced through the development of therapeutic relationships with individuals, families and groups in community-based clinical settings. Strategies of primary, secondary and tertiary prevention will be explored for vulnerable populations such as the homeless, substance abusers, and the persistently mentally ill. This course meets the Communicative Mode of Inquiry requirement.

**NU 428 – Special Problems in Nursing**

**1-9 hours (offered fall, spring)**

Emphasis is on the development of comprehensive nursing skills. The course provides enrichment experiences supplementary to basic nursing courses. Options are available in such areas as mental health, critical care, human development, cultural aspects, and professional socialization. Prerequisite: Junior status in the Nursing Program.

**NU 428 – Special Problems in Nursing: Stress Management**

**1 hour (offered fall, spring)**

Preventative and remedial intervention methods and programs for stress management will be examined and evaluated. Emphasis will be placed on personal application of skills. Prerequisite: Junior status in the Nursing Program.

**NU 428 – Special Problems in Nursing: Professional Organizational Involvement**

**1 hour (offered fall, spring)**

An elective course for all nursing majors providing opportunity for student involvement in pre-professional activities at the national level with instructor input. Course is designed to help students begin and/or continue to develop a professional identity and identify professional career activities.

**NU 428 – Special Problems in Nursing: Politics in Action**

**1 hour (offered fall, spring)**

The course focuses on political activity and awareness in nursing and health care in Missouri and will promote integration and synthesis of previous course work in the social sciences. Analysis of legislative issues affecting nursing and health care as well as effective communication with legislators are important aspects of the course. Practical experiences in the legislative process will be provided. Activities for the course will include attendance at the Missouri Nurses' Association Nurse Lobby Day. Prerequisite: Junior status in the Nursing Program.

**NU 430 – Death and Dying**

**3 hours (offered fall, spring)**

Historical and current perspectives on death from both philosophical and behavioral science points of view. The primary emphasis is to understand death in relation to ourselves and the social organization in which we have our identity.

**NU 445 – Clinical Elective**

**2 hours (offered fall, spring)**

This course will provide applications of the science of human caring through comprehensive practice in the discipline of nursing. The focus will be illness, illness prevention and/or health promotion for individuals, families, groups, and communities through selected clinical experiences in a variety of settings in collaboration with a faculty mentor. Six hours of clinical practicum required per week. Prerequisite: Senior status in the Nursing Program.

**NU 470 – Care Coordination**

**2 hours (offered fall, spring)**

This course presents principles of organizations, leadership and management as related to the Science of Human Care Nursing. Emphasis is on coordination of care for client aggregates and health care personnel. Students will have the opportunity to apply a variety of management methodologies through selected clinical opportunities. Prerequisite: Senior status in the Nursing Program.

**NU 475 – Critical Care Nursing**

**3 hours (offered fall, spring)**

Students will utilize the Science of Human Care Nursing in the provision of nursing care for clients experiencing life threatening situations. Emphasis is placed on the development of knowledge and skills required for rapid and continuous assessments, and the appropriate interventions and evaluations throughout critical client and family episodes to promote healing and/or support resolution toward a peaceful death. Prerequisite: Senior status in the Nursing Program.

**NU 485 – Rural Public Health Nursing**

**5 hours (offered fall, spring)**

The course will provide integration of the Science of Human Care Nursing and public health concepts with a focus on the rural community as client. Emphasis will be placed on health promotion, levels of prevention, principles of epidemiology, population-focused practice, culture, vulnerable populations and community crisis. The rural health care system and problems of access to health care services unique to the rural community will be explored. Prerequisite: Senior status in the Nursing Program. This is a writing-enhanced course.

**NU 491 – Directed Studies in Nursing**

**1-3 hours (offered fall, spring)**

Independent organization of learning activities related to Nursing interest area in order to accomplish objectives mutually agreed upon by student and instructor. This course requires the instructor's approval.

**NU 498 – Professional Socialization**

**1 hour (offered fall, spring)**

A senior seminar planned to aid the individual in role transition from student to professional practitioner. Discussion centers around current issues and their potential impact on nursing practice, preparation of a professional profile,

and methods of socialization. Prerequisite: Senior status in the Nursing Program.

## FACULTY CREDENTIALS

**Note:** Date in parentheses indicates year of employment at Truman. \*Indicates graduate faculty.

**Gretchen R. Cornell**

Professor of Nursing  
BS, Diploma in Nursing, Fort Hays Kansas State College-Hays; MSN, University of Illinois-Chicago; EdS, Northeast Missouri State University; PhD, University of Missouri-Columbia. (1974)

**Sarah Phelps Delaware**

Assistant Professor of Nursing  
BSN, University of Iowa; MSN., University of Arizona. (1980)

**Mariquit Hadwiger**

Assistant Professor of Nursing  
BSN, Central Phillipines University; MSN., Texas Woman's University. (1994)

**Steven Hadwiger (on leave)**

Assistant Professor of Nursing  
BSN, Northwestern Oklahoma State University; MSN., University of Oklahoma; Graduate Study, University of Missouri-Columbia. (1993)

**Brenda Higgins**

Assistant Professor of Nursing  
BSN, Northeast Missouri State University; MSN., Post Master's Nurse Practitioner, University of Missouri-Columbia. (1990)

**Rebecca McClanahan**

Assistant Professor of Nursing  
BS, Northeast Missouri State University; MSN., University of Missouri-Columbia, Graduate Study, University of Kansas. (1975)

**Sharon Ann McGahan**

Assistant Professor of Nursing  
BSN, University of Missouri-Columbia; MSN., University of Texas-Austin; EdS, Northeast Missouri State University; Graduate Study, University of Missouri-Kansas City. (1977)

**Stephanie Powelson**

Assistant Professor of Nursing  
BSN, University of Tennessee Center for Health Sciences; M.P.H., University of North Carolina-Chapel Hill; EdD, Spaulding University. (1996)

**Brenda Wheeler**

Assistant Professor of Nursing  
BSN, University of Kansas; MSN, University of Missouri-Columbia. (2000)

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## HUMAN POTENTIAL AND PERFORMANCE