School of Human Movement, Sport, and Leisure Studies
Kinesiology Division
Exercise Science Program, Summary of Assessment Accomplishments
2008-2009 Academic Year

Submitted by: Lynn A. Darby, Ph.D. and the Exercise Science faculty **Date:** June 15, 2009

Exercise Science Program Description

The Exercise Science major features a broad-based, scientific and professional curriculum in kinesiology, the study of the art and science of human movement. Students choose one of two specializations. Students in the *Exercise Programming Specialization* are prepared for careers in exercise testing, prescription, and leadership. The capstone experience is a 600-hour, semester-long internship in private or corporate fitness centers, sports medicine clinics, allied medical and/or cardiac rehabilitation settings, recreation centers, and/or athletic or Olympic training facilities and programs. The *Human Movement Specialization* includes two 8-hour cognates of specialized study and culminates with the capstone experience of a senior research project during which each student works closely with a Kinesiology Division faculty member on faculty on undergraduate research. The *Human Movement Specialization* appeals to students with broad vocational interests in kinesiology, physical education, exercise, sport, allied health and medical fields, and sports medicine.

The Exercise Science Program is an interdisciplinary course of study taught by faculty educated in one or more of the subdisciplines of exercise science: biomechanics, exercise physiology, motor learning, motor development, and exercise and sport psychology. The breadth and depth of the exercise science courses makes this is a *unique* characteristic of the BGSU program that is not shared with other undergraduate programs in Ohio.

The interest in and demand for Exercise Science majors has increased as evidenced by the number of students requesting the exercise science major and courses. Student numbers have increased from 85 in 2004 to 170 in spring 2008 (i.e., *an increase of 100%*). Students choose this major because of its academic rigor as well as how well it prepares them for graduate work or success in allied health professional programs (e.g., physical therapy, nursing, physician assisting, gerontology, and exercise and health psychology). The job market is strong for students graduating in this major. According to the Ohio Department of Job and Family Services (ODJFS, 2008), the health care industry typically is resilient to economic cycles. Since 1976, the jobs in the health care industry have grown more than twice as fast as the Ohio population. It is projected that by 2016, the proportion of Ohioans 55 years of age and older will have grown since 2006 by 5.4% (i.e., 540,000). Employment needs in these health and wellness service industries related to physical activity are projected to continue both in Ohio and nationally (i.e., a projected employment increase of 27% by 2016 in health care and social assistance industry sector) (ODJFS, 2008).

The Exercise Science faculty members are research-active and have been nationally recognized for their scholarly work and professional service. Each faculty member teaches courses in the program, is pursuing grants, mentors undergraduate and graduate students in focused research, and contributes to the School's goals of establishing an Institute for the Study of Physical Activity and Aging ($ISPA^2$) and/or the BGSU *Center of Excellence for Health and Wellness across the Lifespan.*

Exercise Science Program Learning Outcomes

Upon completion of the baccalaureate degree, students in the Exercise Science program are expected to:

- Understand the interdisciplinary nature of kinesiology;
- Observe, analyze, and critique various movement patterns and their outcomes, integrating the information from the subdisciplines of kinesiology;
- Demonstrate proficiency in computer utilization (word processing, Web-based research, spreadsheet, and exercise-physiology-related software) and verbal and oral communication;
- Demonstrate attainment of a high level of personal well-being (physically, mentally, emotionally, socially and spiritually) and personal excellence in an active and healthy lifestyle;
- Display clear, logical thinking in their writing and speaking;

Exercise Programming Specialization Outcomes

- Display knowledge, skills, and abilities to screen, test, prescribe, motivate, counsel, educate, and individualize muscular strength and endurance, cardiorespiratory training, and/or other physical fitness and lifestyle programs for normal and special populations;
- Understand the scientific bases of exercise programming, not limited to but including exercise physiology, human anatomy, biomechanics, care and prevention of injuries, safety and emergency procedures, and basic cardiopulmonary resuscitation and first aid for exercise settings;
- Demonstrate use of administrative content, and facilities and equipment information in exercise programming;

Human Movement Specialization Outcomes

- Identify and address key research questions to be answered in kinesiology;
- Design, implement, and analyze a research problem in kinesiology.

The Exercise Science major was approved during 2006-2007 for admission of students beginning in August 2007. This major had previously been offered as two separate majors: Exercise Specialist and Human Movement Science. The two majors were combined so that the more comprehensive and recognizable name of Exercise Science with two specializations could be formed.

Annual Report

The number of students in the Exercise Science major continues to increase with 26 more students (i.e., an 18.1% increase from fall 2007 to spring 2009). During 2008-2009 the Exercise Science faculty met monthly to assign tasks and discuss progress to submit an Exercise Science program portfolio for accreditation by the Committee on the Accreditation of the Exercise Sciences of CAAHEP (Commission on Accreditation of Allied Health Education Programs) (http://www.caahep.org/). CAAHEP is the largest programmatic accreditor in the health sciences field and recognized by the Council for Higher Education Accreditation (CHEA). It is anticipated that this accreditation report will be submitted in early fall 2009. The program faculty will then complete updates for continued program recognition by the National Strength and Conditioning Association (NSCA) (http://www.nsca-lift.org/).

During the University's Compact planning process in the fall of 2008, as in 2007, the faculty concluded that the Exercise Science program at BGSU was unique in at least four ways:

A. Academic rigor with a comprehensive curriculum,
B. Experiential learning experiences in laboratories with state-of-the art equipment,
C. Faculty focused on student needs for advising, career planning and placement, etc.,
D. Exemplary culminating experiences – Internships and Senior Research Projects.

Faculty conclusions from 2007 were corroborated with data collected using the Exercise Science "Graduate Survey" and the "Current Student Survey" from CAAHEP during spring of 2009. This questionnaire was sent to 200 alums of the Exercise Science program with the sample chosen from the alums listed through the alumni office at BGSU. Twenty-three alums responded, a return rate of 12% that was low, but fairly typical of mailed questionnaires. Online questionnaires using SNAP survey software are planned in the future.

1. Learning (or Service) Outcomes assessed this year:

During this academic year the Exercise Science faculty compared *all* of the program learning outcomes in the Exercise Science major to the knowledge, skills, and abilities (KSA's) from the American College of Sport Medicine (ACSM; 2008) for Exercise Science Programs. There are 195 ACSM KSA's that encompass the areas of exercise physiology and related exercise sciences; pathophysiology and risk factors; health appraisal, fitness and clinical exercise testing; electrocardiography and diagnostic techniques; patient management and medications; exercise prescription and programming; nutrition and weight management; human behavior and counseling; safety, injury prevention and emergency procedures; program administration, quality assurance, and outcome assessment; cardiovascular: pathophysiology and risk factors; pulmonary: pathophysiology and risk factors; orthopedic/musculoskeletal: pathophysiology and risk factors. A matrix to determine how each exercise science course addresses each KSA, and the level of understanding (e.g., beginning, intermediate, and advanced) expected for each KSA, has been constructed. Final edits on this matrix are being completed during summer 2009.

2. Assessment Methods and Procedures:

All Exercise Science program learning outcomes were assessed internally during 2008-2009 by faculty review and through the CAAHEP survey administered to current students. Externally, program learning outcomes were assessed via the CAAHEP survey sent to alums. Selected data from the surveys are presented.

Internal Assessments:

Data were gathered from current students declaring a pre-exercise science or matriculated into the exercise science major. For this report, junior and senior students' responses to the survey are reported (N=77) for two questions on curriculum, three questions on instruction, and for two questions in the overall evaluation of the program.

Questions were rated with a "yes" or "no" response; open-ended responses are also shown.

Curriculum	Frequency		
	Yes	No	N/A
6. a. Other than major/program courses, are there any other required non-major/program courses?	66	9	2
b. If so, do you feel that all required, non-major/program courses are appropriate? If No, which ones are not and why? Most No responders indicated they did not like the Sport Management classes or some general education courses.	50	21	6
7. Do you feel that the courses in the program are sequenced to help you with your learning? If No, which ones are not and why?	74	1	2
Instruction			
8. Is the instruction in the major/program courses clear and helpful? If No, please explain.	72	3	2
9. Are the tests and quizzes related to the content of the courses? If No, please explain.	75	1	1
10. Are the tests and quizzes fair? If No, please explain.	70	5	2

Overall Evaluation

17. What do you feel are the strongest part(s) of the program?

KNS classes are the strong point	The way the program acts as one. All the faculty are nice and get along
The faculty are good educators, relate well to how info can be used in jobs	Hands on labs allowing students to understand the material and be able to apply it to their future major
The classes are very in depth and well prepare you for your career	How successful it is, and how many people love the major
Helpful advisors	Helpful teachers
Practicum and internships, KNS 360	Available resources and instructions for guidance
The internships and practicum	The teachers and labs we complete
Core classes and instructions (Hayden one of the best)	The instructors are well suited
The help of the instructors, very helpful	The KNS courses because they prep you very well
The labs	The classes required really prepare you

Hand on experiences The requirement of clinical experiences and quality of instructors	Hands on practical experience Very clear what we have to take and most classes are beneficial
The guidance and support by the program's staff	Teachers are great
Knowledgeable staff The instructors are great. Very knowledgeable and good at explaining The classes overlap so the most important things are repeated and known, not just memorized The requirement that you must have a practicum and an internship I feel that this is the best way to learn through diff experiences Most of the professors are excellent and really help us learn the material	Probably will be the practicum/internship The teachers dedication to the students in helping them learn Our wide variety of professors. Diverse staff that can relate to many various aspects of ex phys The faculty is able to teach the students what we need to know and more in a way that we can understand it Practical application and 360 and 361. We learn a lot and practice tests a lot
Instructors are willing to help out. And the instructors coordinate what you learn in each class so you build knowledge instead of going over the same info over and over again Professors are a very strong part of the program and I also feel that our practicum and internship requirements are very good The teachers are the strongest part. They know their materials and are willing to help all students The classes really do teach you what you need to know after college	The fact that all students have to do two clinical/research experiences important in getting practical experience and knowledge as well as allowing students to decide if they actually enjoy a particular field. Great staff of professors; good facility; great opportunities to get practical experience The teachers that are instructing the classes. They are very knowledgeable Most of the instructors are helpful and supportive
The staff	Good education, stimulations
Advisor is fantastic Solid caring staff, have had Campbell, Morgan, Darby, Keylock, Hayden, and Langendorfer, they are all great teachers despite their diff teaching styles The labs because you get a hands on view of what you can do in your field Staff help and guidance as well as good progression through the program the courses and how close the instructors are with the students Constantly taught info from ACSM, the highest recognizable accreditation, I feel I have learned a lot about ex. Sci. teachers are very helpful and knowledgeable Labs were very helpful as well as having us do a practicum and internship	The different courses The advisors are extremely helpful and all of the profs that have come in contact with have been very helpful and approachable and always positive The good teachers We get lots of hands on work in the labs and through our practicum and internship Good education, stimulation, good experience with practicum and internship Practicum and internship. I felt privileged that my major has these because these are real world hands on experiences that help build our education and experience The personality of the KNS department I feel that the courses are helpful and allow us to learn a lot
Class organizations	Hands on/lab activities and lectures by certain profs
The opportunity to do practicum and internship	Base knowledge presented
The "major" classes Practicum and internship gives students great hands on experience	The faculty. They have a great wealth of knowledge and are very enthusiastic about teaching
Great instructors for the most part	Professors

18. What do you feel would enhance the program?

NOTE: Of the 77 responses there were 23 (i.e., 30%) students who responded NA (not applicable) and who indicated there were no changes needed.

Classes more specific to possible jobs	Add modern equipment for labs, and update hardware/software
More teachers and classes (more options basically)	I feel a hands on EKG course would be beneficial
I think the instruction for actually prescribing exercise could be better	More courses concerned with sports nutrition and sport specific training
Add even more hands on approach to learning. Also more practicum and on the field training	I think that an ACSM accreditation would attract more students toward the major
More hands on experiences, more info on what you can do for a career in KNS	Knowledge about what all avenues we can take career-wise with our major
Requiring more classes related to training (i.e., proper lifting techniques, first aid, etc.)	Updated technology for testing in the lab
More academic advisory help	More post grad info/encouragement
Taking out the SM classes and putting in cardiac rehab or adult fitness classes	More hands on and clinical situations or real life situations and environments
More lab work	Have more specialized classes for the interest of students
Cut out the 1st year courses and non-major courses. These were not beneficial at all. Waste of time and money. We also need more instructors for more available class times	If we actually learned more in the educational setting by participating in more activities and out in the field instead of just reading about exercise science and hearing lectures. I feel it would be more beneficial to the students to have more practical learning
A greater variety of classes for students to gain experience in different areas for potential job opportunities	I feel that there should be more classes geared towards cardiac rehab because there should be more in depth learning for this career
Being accredited	More hands on application
Better help	More clinical classes
More staff and up-to-date equipment	More classes
Less sport management	Better help getting internships
I feel the program would be enhanced if the possible job opportunities that were out there for exercise science majors were made more known. I feel the faculty could do a better job of informing students of these opportunities.	More support from the College and more funding
More field experience (smaller practica)	Lab equipment
More exploratory/ in-depth labs	Less classes of some significance
The equipment	Better equipment such as computers to recover data faster
Perhaps more labs	Make BGSU an ACSM testing center. Why it isn't I have no idea.
More courses being offered and not only one semester out of the year	Letting minors be made up, especially if you've took a lot of other classes in the same program
More sections of classes being available	More practical experience in the classroom
More activity in the class room	Better lab resources
More info about future jobs and opportunities	More specific classes for different fields, for example more classes for strength and conditioning
More classes available	Better teachers, better practicum/internship regulations
Classes that would put more kids in the class in shape	Not as many core electives such as BG experience classes
More hands on classes	Better equipment

External Assessments

The Exercise Science faculty members routinely obtain external feedback from exercise specialist students, agency field experience supervisors, and alumnae/i. During 2008-2009 data were gathered from 200 graduates of the program identified through the BGSU Alumni office. Surveys were mailed to all alums. Response rate was 12%. Questions were rated using a *Likert scale* with *5 = Strongly agree* to *1 = Strongly disagree*.

Questions	Mean ± S.D.	N
1. The coursework portion adequately prepared me for my present position.	3.81 ± 0.71	21
2. The clinical/practical portion adequately prepared me for my present position.	4.18 ± 0.80	22
3. The program adequately prepared me for the certification exam.	3.88 ± 1.02	16
4. Program faculty were available for assistance.	4.26 ± 0.86	23
5. Program faculty were sensitive to student needs, and treated students equally and with respect.	4.35 ± 0.78	23
6. Program faculty were supportive of the students, and provided constructive evaluations.	4.35 ± 0.78	23
7. Program officials were competent, knowledgeable, and well-prepared for instruction. Questions and independent thinking were encouraged.	4.30 ± 0.76	23
8. Program policies and procedures were clearly defined and enforced.	4.13 ± 0.76	23

Open-ended questions and responses included the following:

9. What do you feel were the strengths of the program?

Internships, Labs, Scientific base knowledge- ex phys. Classes

Great foundation to be effective along my knowledge based to write exercise Rx for my setting. Good internship program- sports performance clinic in Toledo.

Small classes were helpful, strong emphasis on critical thinking

Good preparation for testing, excellent professors w/ willingness to push and help students, internships were great learning experience.

The teaching, lab work and hands on approach. Dr. Darby, Langendorfer, Shook, & Skelly did a great job, Since moving on Dr. Campbell & Morgan have helped me a lot at work, sending me new students who are eager to learn and I want to thank them.

"Hands on" experience, ability to obtain help from my professors. Internship taught me an immense amount of knowledge, but I strongly feel that college courses have prepared me

Professors

Fantastic instructors who were both knowledgeable and interesting to listen to. Larger projects, i.e., Dr. Stodden's strength training program and Dr. Darby's paper on subjects w/ chronic diseases/conditions was very helpful.

Information was regularly delivered in helpful common application, making it easier to relate to.

Lab time, research opportunities, close knit staff, small class sizes, practical knowledge base, variety of exposure

Good course content and lab skills

The clinical aspect of the program and ex phys labs

Science based courses in anatomy and phys. The required labs in exercise testing and Rx helped me gain valuable experience. Requiring a practicum and internship also helped me gain experience to build my resume

Kinesiology class, internship, biomechanics, faculty and staff

Good clinical portion, solid instructors who tried hard to get students to reach their potentials

The education. The internships & connections professors had. Most of the professors are very approachable

Field experience and involvement of professors with students

Relatively small program allowed for more personal interaction with faculty.

The largest strength were the professors. They were very knowledgeable. They were always offering help and support. I think I learned the most with labs but I am a hands on learner

Biomechanics, sports psych faculty, kinesiology, sports therapy courses, Chris Miller, Lynn Darby, Prof. Black, Dr. Liu

Staff, hands-on labs

Internship requirement. Excellent job and practical experience. Lab projects - great experience.

10. What do you feel were weaknesses of the program?

No specific direction for a job, not enough applications for cardiac rehab or strength coaching

More familiar we/ journal articles/current research; how to read/what to look for in database of journals; when to refer and to whom

Helping to determine what career paths were available to graduates

More hands on teaching, better prepare students for real-life work

Not enough variety, too much focus on cardio rehab, not enough on sports phys./training and overall healthy populations. Show more sick populations, MS, Parkinson's, Diabetes, not just cardio rehab, show more sports/athletics

First exercise prescription course was often cancelled and very unorganized. Needs to be more courses in special populations.

Very little experience offered to those students interested in entering hospital/medical setting and working in cardiac rehab/physical rehab

Practical portion of the program was lacking. Felt under-prepared in that area, until I did my internship. Liked more practice w/ exercise testing and prescription with real subjects

Career preparation with the exception of mainstream careers (i.e. phys. Ed, physical therapy, etc.) there was not a lot of exploration into career ideas

Wide range of student abilities-taking some honors classes, lots of research, and other classes that had athletes who needed an easy course, didn't care, and were just filling time to keep their scholarships. Varying academic levels and interest among students

Human movement science program did not ready me for the path that found me regarding strength and conditioning certification. However, scientific research and projects assisted me with another portion of my job

Some classes were really large

More of a focus on cardiac/pulmonary rehab

Not enough nutrition evaluation. Can that possibly be linked in as a minor?

Need to divide program into a clinical track & wellness/corporate fitness. Clinical track would include mandatory EKG class for undergrads w/ an accounting class, more research & lab activity and microbiology. It should prepare students for the ACSM exercise specialist cert. Also EKG class should include medications.

Not enough emphasis or availability of classes for strength & conditioning & nutrition for athletics

Ex phys professor. This was the one class I struggled in. I felt the professor was unapproachable and didn't seem to put forth much effort in helping me understand the materials I approached him with. I wish I could have had a different professor.

Unnecessary classes; the program as a whole seemed to push its students into very specific directions (i.e., cardiac rehab or ex phys) which require higher degrees of education

Program was very fitness oriented. This made it difficult when I became more clinically focused in my interests

I would have liked more real life experience. More practica instead of classroom work.

Too much business/marketing-I was 3 hrs short of marketing minor by time course curriculum was switched over mid-program. Although helpful, these courses moved away from clinical aspect

Too many sport management class requirements, not enough assistance with job placement

Can't remember.

3. Inferences from Assessments:

- Currently, the Exercise Science major produces generally well-prepared students who are successful in employment, and admission to continuing and professional education programs.
- Feedback from alums indicate that they are most satisfied with the faculty, and intern and practical experiences. Most alums conclude that they had very good academic preparation at BGSU.
- Alums and current students alike indicated a desire for more "hands-on" experiences in labs and various practical experiences.
- Generally, alums and current students indicated the desire for a focused EKG (electrocardiography) course, fewer sport management courses, and more content specific courses.
- Professionals in this area need the knowledge and skills developed through completion of the Exercise Science major.

4. Actions Taken/Program Improvements:

The Exercise Science faculty members are involved actively in their professional organizations (i.e., ACSM, NSCA, AAHPERD) and continue to revise and update the Exercise Science curriculum. The number of majors in the Exercise Science program has increased and is projected to continue increasing since implementation of curricular and name changes. In addition, the Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2008-09 Edition*, has identified the broad category of Fitness Workers and indicated that, "Jobs for fitness workers are expected to increase much faster than the average for all occupations." (http://www.bls.gov/oco/ocos296.htm). "Employment of fitness workers is expected to increase 27 percent over the 2006-2016 decade, much faster than the average for all occupations." In addition, there are a number of health-related occupations in the health care cluster of top 50 jobs in Ohio that relate to and draw on students from the Exercise Science program (Ohio Workforce Informer, 2008).

During 2008 an Instructional Improvement Grant was submitted to obtain "Exercise Science Tool Kits." The purpose of this project was to increase opportunities for students to have "hands on" opportunities to test clients as a part of their classes. This grant was not funded, however, a new course fee was approved for *KNS 4230 – Exercise Testing and Prescription*, so that the essential "exercise testing tools" in an "Exercise Tool Pack" can be used by groups of students. In *KNS 4230* as well as *KNS 4250 – Exercise Testing and Prescription for Special Cases* the students learn the content for correctly completing exercise programming on low, moderate, and high-risk clients (ACSM, 2009). Each student is asked to complete exercise programming that includes health screening, risk stratification, exercise testing, and exercise prescription for selected clients. Each Exercise Tool Pack will include the following items: Skinfold calipers, Gulick Tape (constant tension), Acumen or Polar heart rate monitor, pedometer, medium tension resistance band, Accusplit stopwatch, set of saucer cones and cone carrier, goniometer (12.5" in length), yoga mat, yardstick (collapsible – folding ruler), carrying bag w/ BGSU- Exercise Science imprint, small stability Ball Plus (18'), and blood pressure unit with stethoscope. These classes currently do not include a laboratory section and this project is intended to allow students to freely select a "client" so that they will feel comfortable working with this person and arranging these "hands on" activities.

The Exercise Science program and course requirements have changed over the years (this content was first offered in the early 1980's) in order to balance the demands and rigors of the professional bodies that certify Exercise Science graduates, and the desire for "student choice and flexibility" in course selections. The Exercise Science program is currently certified and recognized by the National Strength and Conditioning Association. Accreditation materials for CAAHEP for the Exercise Science program will be completed in early fall semester 2009.

Based on information gather during 2008-2009 (i.e., results of the current student and alumni survey data), the following activities will be completed in 2009-2010 to continue to strengthen and improve the current Exercise Science program:

- The accreditation portfolio for the Commission on Accreditation of Allied Health Programs (CAAHEP) / Committee on Exercise Science (CoAES) will be completed for Exercise Science.
    - This process will culminate in updates of 3-5 program courses:
        - To reduce the number of required sport management courses an exercise science course focusing on organization and administration of exercise programs will be offered. This course has been offered as a KNS 3950 online course during summers 2008 and 2009. It will be a revision of *KNS 4400- Designing and Directing Exercise Programs*. This course has been well received and will allow for removing *SM 370 – Sport and Public Assembly Facilities* and *SM 3900 – Legal Aspects of Sport and Recreation* as required courses for Exercise Science majors (-6 credit hours).
        - In addition, *KNS 3950 – Research in Kinesiology* that was offered online in summer 2009 and that was well received is planned to replace *SM 2140 – Introduction to Research in HMSLS*. A new course will be proposed since KNS 3950 is a special topics course and cannot be offered more than three times.
        - A new course *KNS 4XX0 - EKG interpretation / Medications* is planned for 2009-2010, and the currently offered special topics *KNS 3950 – Group Exercise Instruction* course will be proposed as a required Exercise Science program course.
        - The net change in credit hours for the exercise science program will be +3 credit hours.
- Faculty will continue development and pilot testing of assessment rubrics to directly assess learning outcomes and knowledge, skills and abilities (KSAs) of the Exercise Science program.
- Key assessment artifacts for student portfolios will be identified and integrated into the Exercise Science courses during 2009-2011. These key assessments will be integrated into student ePortfolios.
- Updates to the Mary Watt Resource Center computers will continue to be pursued so that content specific software (unable to be housed on university based computers) will be available for students.
- Updates of the program portfolio for continued recognition by the National Strength and Conditioning Association (NSCA) will be completed.

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