

Exercise Science
College of Education
Self-Study Program Review Report

Dakota State University

April 28-29, 2010



Reviewer: Dr. Scott Drum

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Part 1: Institutional History

Dakota State University (DSU), one of six public universities governed by the South Dakota Board of Regents, was established in 1881 in Madison, South Dakota, a community of 6,500 people. In 1984, a new institutional direction for DSU was approved by the state legislature, giving DSU a mission “to provide instruction in computer management, computer information systems, electronic data processing and other related undergraduate and graduate programs, including the preparation of elementary and secondary teachers with emphasis in computer and information processing.” In response, DSU has become a lead institution in the state for producing large numbers of graduates especially equipped to meet the technology needs of employers and society.

DSU specializes in programs in computer management, computer information systems, and other related undergraduate and graduate programs as outlined in SDCL 13-59-2.2. DSU is accredited by the Higher Learning Commission of the North Central Association to offer bachelor’s and master’s degrees, and associate degrees in selected programs. DSU has one doctorate program, a Doctor of Science in Information Systems (D.Sc.IS). Bachelor of Science degree programs include majors such as Biology for Information Systems, Computer Science, K-8 Elementary Education, a composite K-8 Elementary Education/K-12 Special Education, E-Commerce & Computer Security, English for Information Systems, Exercise Science, Health Information Administration, Computer Information Systems, Mathematics for Information Systems, Multimedia/Web Development, Professional Accountancy, Respiratory Care, and Secondary Education. Secondary education majors include 7-12 Math, Biology, English, and Business education as well as K-12 Computer and Physical Education. All education majors graduate with a K-12 Educational Technology Endorsement which certifies them to teach in South Dakota. DSU offers a Bachelor of Business Administration degree in Accounting, Management Information Systems, Finance, Management, and Marketing.

DSU’s programs have become very attractive for students interested in acquiring the combination of disciplinary expertise and computer/technical skills sought after by employers. The average campus placement rate for 2006-2008 was 96% (2009 rates are not yet available) which demonstrates that employers consider DSU’s graduates highly qualified to meet their needs and have sought them out even in a tight employment market. Because of the technology-rich programs and solid placement record, undergraduate headcount at DSU has grown from 2,295 in the fall of 2004 to 2,865 in the fall of 2009. The FTE during that same time period rose from 1,514 to 1,633.

Academic programs at DSU are well supported by a high level of computer technology and computer availability throughout the campus. In fall 2005, DSU began the three-year implementation of a wireless mobile computing initiative (WMCI) that eventually placed a tablet PC in the hands of all on-campus, undergraduate students enrolled in six credits or more. In the first phase, all freshmen and sophomores received the tablets; in the second year, juniors were added to the program; in the third year, seniors were added. This tablet program is enhanced by ubiquitous wireless and wired networks across the campus and in all campus facilities (including residence halls, athletic facilities, and even the football stadium). As part of the university’s move to a wireless environment, the institution also installed wireless projection systems in every classroom and in most meeting rooms. The university’s goal is to replace student tablets every two years, with faculty machines replaced on a four-year cycle. The program is funded through a

student fee program, with machines leased to students and supported through a help desk and repair center. DSU is the only completely wireless university campus in the state.

Prior to implementation of the WMCI, the institution funded and maintained general-access computer labs plus at least one specialized teaching lab in every academic building. Since full implementation, the university has eliminated its general access labs and now maintains only specialized teaching labs for high-end computing. Peripheral digital devices – audio recorders and digital cameras, for example, are part of the Library’s circulating collections. The College of Education (COE) has digital cameras for videoing and the specialized teaching lab in Kennedy Center 123 and the library provide networked scanning devices for students to use.

The *mission* of the College of Education is to guide undergraduate and graduate students through the process of acquiring and applying professional knowledge, skills and dispositions with emphasis on integrating technology in the teaching and learning process to positively impact K-12 learning. Four undergraduate programs are offered in the COE, including Exercise Science, K-8 Elementary Education, a composite K-8 Elementary/K-12 Special Education, and K-12 Physical Education.

In the fall of 2002, the major was renamed Exercise Science. The original program was called Fitness-Wellness Management and was primarily designed to prepare students for careers in the fitness industry. With changing trends in the health field, demands for exercise science majors with more training in the science of exercise prompted the change to a major in Exercise Science. The curriculum was revamped in 2002 and DSU became the only state university to offer a B.S. in Exercise Science. Curriculum changes have occurred as recently as the current academic year (2009-2010) when three courses had title and/or course description changes and a Senior Seminar course for two credits was added. Board of Regents approval is anticipated yet this year and these changes will become part of the 2010-2011 requirements.

The last institutional program review of the Exercise Science major was conducted in spring 2004. Since that review, curriculum changes have included the following: 1) renaming and/or changes in course descriptions for EXS 335 from Program Design & Administration to Administration of Exercise Science, EXS 405 from Methods of Training to Physiological Methods of Training, and EXS 420 from Facility Risk Management to Risk Management; 2) replaced BIOL 323 Human Anatomy and Physiology/lab with BIOL 221 Human Anatomy/lab; 3) added BIOL 325 Physiology/lab; and 4) prerequisite changes which are outlined in the 2010-2011 Exercise Science Checklist (Appendix A). One of the most substantial changes for the program was the addition of a second full-time faculty member in fall 2008. The program in 2004 had an enrollment of 45 students while present enrollment stands at 85 students. While this area will be addressed more fully in Part 7 Facilities and Equipment, substantial improvements have also occurred in the Human Performance Lab with the significant purchase of additional equipment.

PART 2: TRENDS IN THE DISCIPLINE

Introduction

During the past 15 years, health disparities have continued to climb in the United States, in spite of warnings and public statements originating from the United States Surgeon General 1996 landmark position statement on the state of the nation's fitness and health concerns. The government's Healthy People Initiative, which comes out every 10 years has not assisted with improving overall health for our country. The Healthy People Initiative 2010 (U.S. Dept. of Health and Human Services) cited the following two major goals:

- 1) to help individuals of all ages increase life expectancy and improve their quality of life.
- 2) to eliminate health disparities among different segments of the population.

Ten health indicators, which include but are not limited to physical activity, obesity, access to healthcare, and tobacco use are examples that shaped the major goals initiative from 2001-2010. From the latest statistics being represented by the Center of Disease Control and Prevention and the U.S. Department of Health and Human Services, the current initiatives have not helped to reduce all ten indicators. Flegal et al. (2009) reported an increase in obesity rates, especially among women in the United States during the past several years. The same authors also reported current trends in obesity rates do not truly represent a parallel relationship with mortality rates. Their recommendation still reflects prior statements created by past initiatives of promoting community education to provide environmental interventions. However, this suggestion has not been totally accepted by those choosing a health and fitness profession as a focal point of interest or concern.

Current Trends in Exercise Science-related disciplines

During the past decade, exercise science professionals along with allied health professionals have made significant strides to eradicate the fore-mentioned health indicators as a means of improving our nation's health. The previous Dakota State University EXS program review (2004) stated this as an important issue to promote within the discipline. However, this philosophical direction is not being considered a top priority by many incoming students to higher education institutions nationwide. Economical factors have negatively affected companies such as HMO's and corporations that could offer wellness programs to their employees at a reduced cost. Many of these jobs are outsourced to non-degreed or less qualified personnel, if this program was not already eliminated by budget cuts within their fiscal infrastructure. Over the past five years, a push towards an emphasis on sports performance as opposed to health-related fitness is the latest trend. Personal training, which now includes providing sports performance conditioning, is also a popular career choice for Exercise Science students nationwide. Certifications in these areas have proliferated to the point where they are now being included as part of an Exercise Science curriculum or being offered as continuing education, providing another benchmark in the field besides the attainment of a baccalaureate degree.

Currently, the trend has also changed with regards to minimum education requirements at several sports enhancement centers nationwide. Thirty – forty percent of these facilities now request a Master's degree in a fitness-related field along with a national certification from the American College of SportsMedicine (Health Fitness Specialist) or the National Strength and Conditioning

Association (Certified Strength and Conditioning Specialist). These two organizations are considered the main certifying bodies that are recognized world-wide in the field of Exercise Science. Besides the certification component for Exercise Science students, the latest trend is having an accredited academic unit offering the Exercise Science degree. The American College of Sports Medicine (ACSM) accredits programs through the Commission on Accreditation of Allied Health Education Programs (CAAHEP). The National Strength and Conditioning Association (NSCA) offers an endorsement vs. an accreditation while they prepare for entrance procedures for CAAHEP acceptance. Since the DSU Exercise Science program is not able to qualify for ACSM accreditation based on student numbers, current equipment, lab space, etc., our students prefer to focus on practical applications, which allows the NSCA to become the best fit for our program at the present time.

Career Options

DSU's Exercise Science graduates are currently pursuing the following occupations:

- Physical Therapy – M.PT degree
- Occupational Therapy – O.PT degree
- Nursing – LPN/RN
- Cardiac Rehabilitation – M.S. or M.A. degree
- Sports or Fitness Administration i.e. YMCA, Sports Performance Centers, Recreation Centers
- Personal Training at Sports Performance Centers, Fitness Centers, or Commercial Gyms
- Corporate Fitness
- Athletic Training- MAT degree
- Teaching Higher Education – M.S. or M.A. degree or doctoral level

Additionally, DSU provides the opportunity for its students to prepare for and take the Certified Strength and Conditioning Specialist exam once a year. DSU also offer the less rigorous Certified Personal Trainer (CPT) exam at the same time. The first on-site exam will be held on June 5th, 2010 in the Kennedy Center. This will be the very first time the CSCS exam has been offered in the state of South Dakota.

References

Exercise Science Self-Study Program Review, Dakota State University. April 6, 2004

Flegal, K.M. Carroll, M.D., Ogden, C.L., Curtin, L. R. Prevalence and Trends in Obesity Among US Adults, 1999-2008 *JAMA*. 2010;303(3):235-241. Retrieved online January 13, 2010 (doi:10.1001/jama.2009.2014).

Part 3: Academic Programs and Curriculum

Departmental Deficiencies and Planned Remedies

The Exercise Science program has made significant changes based on the 2004 Exercise Science Program Review. The name of the program was changed from Fitness-Wellness Management to Exercise Science based on the recommendation to focus more on the clinical side of exercise science. By fall semester of 2008, the following modifications were enacted:

- 1) Changes were made in the EXS 395 Practicum to provide more hands-on opportunities at the Community Center and the EXS 454 Biomechanics was added to the curriculum
- 2) Laboratory experiences were added in EXS 395 Practicum as well as EXS 454 Biomechanics
- 3) Improved internship administration guidelines for faculty coordinator, on-site supervisor, and intern (EXS 494 Internship).

During the spring semester of 2009, the Exercise Science department purchased an important piece of clinical laboratory equipment, the LIDO, an isokinetic dynamometer. Additionally a major equipment purchase in fall semester 2009 allowed a Parvo One metabolic gas analysis system, SRM Ergometer, and a Woodway Desmo treadmill to be placed into the Human Performance Lab. These major purchases have elevated the DSU Exercise Science program to being a 'state of the art' lab. In order to keep up with other Exercise Science programs in the state/region, a BodPod would be the next piece of equipment needed to improve the Human Performance Lab. The patented air displacement, plethysmography device is similar in principle to hydrostatic (or "underwater") weighing but easier to manage, based on logistics of the lab location and access. Recently, an Exercise Science faculty member submitted a grant to the South Dakota Board of Regents (SDBOR) to qualify for a possible purchase of a Bod Pod.

Exit exams for all majors are required by the South Dakota Board of Regents prior to graduation. In the spring of 2010, the Exercise Science exit exam was revised to reflect appropriate standards students should meet or exceed prior to graduation. The National Strength and Conditioning Association knowledge, skills, and abilities (KSA's) have recently been adopted as the criteria for this exam. Exercise Science faculty will track the numbers to determine if the core coursework is assisting students in meeting the KSA's and preparing them for the CSCS exam as a graduating senior.

Other considerations being discussed include a minimum GPA for entrance into graduating from the Exercise Science program. Seven years ago, certain courses were designated as needing a grade of "C" or higher or they would need to be retaken. Those courses include EXS 180 Foundations of HPER, EXS 350 Exercise Physiology, EXS 353 Kinesiology, EXS 400 Exercise Testing & Prescription and EXS 454 Biomechanics. This has helped ensure quality academic performance and a safeguard in preventing students from earning a "D" in a fundamental course and still graduating.

Instructional Methods

The faculty utilizes a variety of instructional methods including lecture, laboratory, interactive multimedia, and use of Internet, especially D2L and Pageout. Most classes involve at least a moderate degree of lecture and discussion. Several classes involve laboratory work, either in computer labs, science labs (Human Anatomy, Physiology), the Madison Community Center (Practicum), and the Human Performance Laboratory (Kinesiology, Exercise Physiology, Exercise Testing and Prescription, and Motor Learning & Development). The Internet is utilized in most classes, at the very least, providing resources of valuable information, as long as instructors are able to have students recognize legitimate web links. Students in the Exercise Science curriculum also have opportunities to take courses online. Online courses presently include HLTH 320 Community Health, HLTH 370 Stress Management, HLTH 422 Nutrition, EXS 180 Foundations of HPER, EXS 420 Risk Management, and certain EXS 492 Topics courses.

Interrelationships with Other Curricula

The Exercise Science and Physical Education programs have an intimate and symbiotic relationship. Majors from both programs share a number of the same required courses. Due to the scientific nature of the major, the BIOL 151 General Biology, BIOL 221 Human Anatomy and BIOL 325 Physiology courses are taught by biology faculty members and electives are offered and taken in the Natural Sciences Department offered by the College of Arts and Sciences. Courses are offered in Exercise Science that progress logically through a series of general education (43 credit hours) and prerequisite courses to the required major courses (57 credit hours) and electives (28 credit hours). Since the last program review, Exercise Science faculty have submitted significant curriculum changes. The curriculum modifications included changes in the course prefixes to more closely match the new program name. New courses such as EXS 490 Senior Seminar were added to meet various needs of the exercise science majors in support of the health professions and course prerequisite requirements have been established making for a more sequential, consistent curriculum. (See Appendix A, 2010-2011 Exercise Science Checksheet)

The required major curriculum has been set to comply with the recommendations of the National Strength and Conditioning Association. Dakota State University will seek an endorsement from the NSCA as a nationally recognized undergraduate exercise science program during the next several months.

Bachelor of Science in Exercise Science

The Bachelor of Science in Exercise Science is a professional degree designed to prepare students for a successful career in the fast-growing fitness-wellness industry as well as matriculation into programs in a number of related health-care fields and university teaching. The flexible and interdisciplinary nature of the degree enables students to obtain an education that best meets their individual career goals, whether those goals are related to clinical exercise science, corporate and private fitness, community and hospital-based wellness and rehabilitation programs, or graduate studies.

Exercise Science Degree Program

System-wide General Education Requirements* **32**

Institutional Graduation Requirements **11**

* Majors must take BIOL 151, CHEM 112, PSYC 101, MATH 102 or higher as part of the system-wide general education requirement.

Major Requirements 57

BIOL 221	Human Anatomy w/Lab	4
BIOL 325	Physiology w/Lab	4
EXS 180	Foundations of HPER	2
EXS 300	Introduction to Research	3
EXS 335	Administration of Exercise Science	3
EXS 350	Exercise Physiology	3
EXS 353	Kinesiology	3
EXS 376	Technology Integration	3
EXS 395	Practicum	2
EXS 400	Exercise Testing & Prescription	3
EXS 405	Physiological Methods of Training	3
EXS 420	Risk Management	3
EXS 452	Motor Learning & Development	3
EXS 454	Biomechanics	3
EXS 490	Senior Seminar	2
EXS 492	Topics	3
EXS 494	Internship	1
HLTH 251	First Aid and CPR	1
HLTH 370	Stress Management	3
HLTH 422	Nutrition	3
PE 354	Prevention & Care of Athletic Injuries	2

Electives 30**

**Two of these credits will have been met upon completion of BIOL 151 and CHEM 112 or PHYS 111 as part of the system general education requirement.

Total Credits for the Exercise Science Major: 128

Part 4: Program Enrollment and Student Placement

In recent years, the public has recognized that adopting a lifestyle combining regular physical activity with good nutrition reduces the risk of death or debilitation from cardiovascular disease, cancer, obesity, and diabetes. As a result, employment opportunities in exercise science and related health fields have increased dramatically.

Currently, program admission requirements mirror those of the institution. To continue enrollment and to graduate, students must maintain a minimum 2.0 cumulative grade point average. The academic backgrounds of students range from incoming freshmen with undefined career goals to transfer students from other institutions, or programs at DSU with a definite goal for a career by way of the Exercise Science degree.

Enrollment in the Exercise Science program has increased significantly since the fall of 2003 (Table 1). Marketing efforts using a brochure, web site, and recruiting talks have been implemented to attract more highly qualified (academically) students into the program. The placement data for 2008 included 18 graduates, 14 of whom returned DSU graduate follow-up survey. Of the 14 graduates, 10 went on to graduate school; two graduates found jobs in the field (Family Wellness in Sioux Falls, SD and Quality Living in Omaha, NE) while two were otherwise employed. The Exercise Science program reported an overall placement success rate of 86% with an average entry salary of \$22,880.

Table 1: Enrollment Numbers

Fall 2003	Fall 2004	Fall 2005	Fall 2006	Fall 2007	Spring 2008	Spring 2009	Spring 2010
33	38	65	69	77	80	85	85

Placement data for the Exercise Science program for the years 2006-2008 can be found in Table 2.

Table 2: Exercise Science Placement Overview

2008		2007		2006	
Number of Graduates	18	Number of Graduates	10	Number of Graduates	10
Graduates Accounted For	14	Graduates Accounted For	7	Graduates Accounted For	3
Graduates Continuing Education	10	Graduates Continuing Education	5	Graduates Continuing Education	0
Graduates Placed in Major	2	Graduates Placed in Major	2	Graduates Placed in Major	3
Graduates Otherwise Employed	2	Graduates Otherwise Employed	0	Graduates Otherwise Employed	0
Placed in South Dakota (50%)	1	Placed in South Dakota (50%)	1	Placed in South Dakota (67%)	2
Placed Out-of-State (50%)	1	Placed Out-of-State (50%)	1	Placed Out-of-State (33%)	1
Not Seeking Employment	0	Not Seeking Employment	0	Not Seeking Employment	0
Program Placement Percentage	86%	Program Placement Percentage	100%	Program Placement Percentage	100%
Average Entry Salary	\$22,880	Average Entry Salary	NA	Average Entry Salary	NA
Partial List of Employers		Partial List of Employers		Partial List of Employers	
Family Wellness, Sioux Falls, SD		Eli Lilly, Indianapolis, IN		Dakota Wellness, Brookings, SD	
Quality Living, Omaha, NE		Family Wellness, Sioux Falls, SD		Madison Community Center	

Part 5: Faculty Credentials

The Exercise Science major is one of four disciplines within the College of Education. Dr. Judy Dittman is the Dean for the College of Education.

Faculty Who Teach Required Courses in the Program:

Dr. Andrew Shim, Assistant Professor Exercise Science, Ed.D., Alliant International University, San Diego

Dr. Larry McDaniel, Associate Professor of Exercise Science, Ed.D., University of Northern Colorado

Dr. Gale Wiedow, Associate Professor of Physical Education/Exercise Science, Ph.D., University of Nebraska-Lincoln

Mr. Brad Gilbert (1997), Instructor of Physical Education and Athletic Trainer, M.S., South Dakota State University

Dr. Dale Droge, Professor of Biology and Academic Coordinator for Math and Science, Ph.D., University of Illinois at Urbana-Champaign

Dr. Donna Hazelwood (1994), Associate Professor of Biology, Ph.D., Cornell University

A curriculum vita for each of the above faculty is contained in Appendix B.

Support Staff:

Shelly Rawstern, Program Assistant II, College of Education

Billie Hoekman, Senior Secretary, College of Education

Because of the enrollment explosion in the Exercise Science program over the last five years, in the spring 2008 budget hearings, a request was made to add another full-time, tenure-track position for Exercise Science. The request was granted and in the fall of 2008 Dr. Andrew Shim was hired.

The present faculty is capable of handling current courses offered in the Exercise Science major. Should enrollment continue to rise significantly and another exercise science faculty member was hired, strengths in such areas as nutrition, physiology or anatomy would be appropriate. This would enhance not only the Exercise Science program but also the Physical Education program, two programs having a symbiotic relationship at Dakota State University.

There is new direction and guidance from the South Dakota Board of Regents as well as DSU's president to encourage faculty research at DSU. While progress has been made in this area, there are still opportunities for improvement.

Part 6: Academic and Financial Support

Resources providing academic support to faculty and students in Exercise Science include the Karl E. Mundt Library, a wireless computer infrastructure, classrooms wired with computer and audiovisual capabilities, and in-house E-education technology.

Karl E. Mundt Library

The Karl E. Mundt Library and Learning Commons provides a wide range of library services as well as a diverse collection of reference and informational materials for the use of the faculty and staff of Dakota State University. The library building is regularly open seven days a week, but 24-hour access to most library resources and services is available through the library's website at <http://www.departments.dsu.edu/library> (or select the "Library" under the "Academics" section of the DSU homepage) to search for information, request services, and learn more about the library. Library resources are also linked and available via search engines like Google Scholar and utilities like Worldcat. In addition to its own resources, any titles or articles the Mundt Library does not own it will quickly obtain through interlibrary loan, at no cost to the borrower.

The Mundt Library provides a full range of services and resources related to supporting a fitness or exercise science related degree. There are abundant fitness, wellness and exercise science materials available. The library makes them easily findable through [Physical Education and Wellness Resources](#), a subject guide for finding books, research databases and indexes, reference materials, and selected resources on the web, and maintained by a librarian.

The Mundt Library has paid subscriptions to the major full-text and indexing research databases critical to pursuing a fitness or exercise science related topic including *Web of Science*, *Physical Education Index*, *Medline (National Library of Medicine)*, *Academic Source Premier*, *ProQuest Research Library*, *Consumer Health Complete*, *Health Source*, and others.

The Mundt Library has access to the major periodicals that are useful to fitness or Exercise Science research including *American Journal of Sports Medicine*, *Physician and Sportsmedicine*, *Physical Therapy*, *Medicine and Science in Sports and Exercise*, *JOPERD*, *New England Journal of Medicine*, *Science News*, *Journal of Nutrition*, *JAMA*, *Nutrition Reviews*, *Nutrition Today*, *Physical Educator*, *Perspectives in Biology and Medicine*, *Scientific American*, *Science*, *Nature*, *Scholastic Coach*, *American Journal of Nursing*, *American Medical News*, *American Scientist*, *Journal of Teaching in Physical Education*, *Mayo Clinic Newsletter*, and *Research Quarterly for Exercise and Sport* and others. A search in [Journal Finder](#) can locate others. A simple search of the [library catalog](#) will reveal many current titles using search terms like exercise, physiology, fitness, biomechanics or other related topic will reveal many current titles in either print or electronic texts. Additional publications are purchased as appropriate for the fitness, exercise science degree, following recommendations from faculty and/or advice from professionals in the field.

Students also have access to the resources available through [SPONET: Sport scientists', coaches' and athletes' ultimate findmachine](#) which focuses on athletic training. (Click on British flag to bring up the English language version.) This database is produced and maintained by the

Department Information and Documentation Sport at the Institute of Applied Training Science, Leipzig, Germany.

It is part of the mission of the Library to assist faculty in educating "information literate" students. The librarians encourage and promote ongoing instruction in research skills and are happy to provide this instruction to a class when requested to do so. The Digital Design & Access Librarian and Instruction/Reference Librarian are highly skilled at collaborating with faculty to design research assignments that will help accomplish course goals and provide the student with a successful research experience. Library faculty is available to collaborate with classroom faculty to design course-appropriate research projects. They train and assist students in learning and expanding their research skills working one-on-one, in small groups or to an entire class.

The Office of Extended Programs (<http://www.dsu.edu/disted/index.aspx>)

The Office of Extended Programs coordinates planning, planning, development and delivery of all courses and programs that are delivered at a distance, including online, videoconferencing, and face-to-face at remote sites. While the Exercise Science is not an online program nor delivered at another site, a number of the courses are delivered as online courses including HLTH 320 Community Health, HLTH 370 Stress Management, HLTH 422 Nutrition, EXS 180 Foundations of HPER, EXS 420 Risk Management, and certain EXS 492 Topics courses. Over the past three years, \$1,000/credit hour stipends have been available for faculty to develop online courses during the summer.

The Office of Extended Programs is staffed with the Director, the DSU Webmaster, Web Support Technologist, Communications Network Specialist and a senior secretary. This team serves the needs of students who are enrolled in the online and video conferencing courses at DSU. The office is the mainstay of distance services to students, working with the administrative offices of DSU to provide these services. The staff also serves the Web needs of faculty, staff, and students at DSU and the needs related to educational technology. Faculty and students employ Desire2Learn (D2L) for academic interaction and course delivery.

The Department of Computing Services (<http://www.dsu.edu/computing-services/index.aspx>)

The Department of Computing Services provides centralized hardware, software, and network support for the university and is comprised of two groups, Systems Support and Administrative Computing. The mission of Computing Services is to support the integration of information technology into the academic programs and administrative office of the University. Information technology encompasses the use of information in all of its forms: data, audio, and video. Support shall be provided in the form of guidance in the proper application of technology, user assistance and training, software development, software and hardware maintenance and support, and research of existing and expected technologies.

Systems Support provides centralized support for personal computers and other systems on the campus-wide network. All systems are connected through a campus-wide computer network that has existed since 1987. In 1993, Computing Services expanded the network cabling to every dorm

room, switched the network backbone to fiber-optic cable and decommissioned the on-campus IBM mainframe. Computing Services maintains a common user environment for all of the personal computers, so users can easily use all of the services no matter where they are on campus.

Working in partnership with the colleges and the institution's academic support areas, Computing Services develops the image of applications installed in each computing laboratory. Network Services operate a Repair Center, staffed primarily by students, to quickly respond to any computing or network access problems in campus offices, computing laboratories, and faculty and student issues.

Support Staff

The university recognizes the College of Education has responsibilities in areas such as admissions, field-experience assignments, and certification, which extend beyond the College of Education. The university, therefore, funds two full-time secretaries in the College of Education to assist with these responsibilities, including the Exercise Science program.

College of Education Budget

The College of Education receives an annual operating budget of approximately \$39,053 for operations and maintenance. An additional \$8,972 is designated for Exercise Science/Physical Education. In January 2009, the university awarded an additional \$11,900 to purchase the Lido Multi-Joint machine and in fall 2009, an additional \$24,000 was granted by the university to purchase three high-end pieces of equipment including the ParvoMedics Metabolic Cart, SRM Ergometer and Woodway EVO treadmill. The Exercise Science/Physical Education budget contributed an additional \$8,458 towards these three pieces of equipment as the total dollar amount was \$32,458. Due to faculty passion and institutional commitment, we have made great strides in our Human Performance Lab over the last two years.

Financial Concerns

Due to the economic conditions in South Dakota and the impact this has on the university, loss of operation and maintenance dollars is a concern. Faculty and students are doing more research than at any time in the program's history and we must therefore continue our efforts to improve the Human Performance Laboratory with state of the art equipment. Faculty will continue to pursue external funding through research grants and donations.

Part 7: Facilities and Equipment

Current Facilities

Most of the Exercise Science classes are taught in the Kennedy Center, the campus home of the College of Education, a number of classrooms, the Human Performance Lab and faculty offices. EXS 376 Technology Integration has access to the Kennedy Center computer laboratory while BIOL 221 Human Anatomy and BIOL 325 Human Physiology (the Department of Natural Sciences), is taught in the Habeger Science Center. The Field House and/or Community Center are used for certain laboratory experiences such as Practicum (EXS 395) or Internship (EXS 494). The quality of the facilities used to deliver most of the academic programs is favorable compared to outside professional standards.

At Dakota State University, technology is available to all students, staff, and faculty. All of DSU's computers are fully networked. This includes network access in all of the faculty and staff offices, computing labs, residence halls, academic buildings, and in the Human Performance Laboratory.

The Exercise Science program benefits from the use of the Human Performance Laboratory (HPL) which was founded in 2003 and is located in Room 110 of the Kennedy Center. The HPL is a focal point for students majoring in Exercise Science, providing a wide range of practical hands-on lab experiences in several EXS courses. The HPL is also used by faculty and students to support research interests through initial project development, data collection, statistical analysis, and completion of their research findings.

Testing capabilities in the Human Performance Laboratory include:

Maximal and Sub-maximal Exercise Tests

Graded Exercise Tests determines the maximal aerobic capacity during exercise on either a treadmill or bicycle ergometer via gas analysis (Parvo True One System) or through predicted means via a sub-maximal effort. Students use stethoscopes, sphygmomanometers, and Polar interfaced monitors to assess resting and exercise heart rates, and blood pressure to determine the threshold of one's physical working capacity.

Body Composition

This test measures the percentage of body fat using skinfold calipers, tape measurements, or bioelectrical impedance for body composition determination. Determining proper body fat percentage is an important skill for Exercise Science majors to achieve in our field.

Wingate Power Test

This assessment is perhaps the most popular test for peak anaerobic power, anaerobic fatigue and total anaerobic capacity. This test measures the relative "anaerobic" power of short-term, maximal-exertion capability via the SRM ergometer or Monark ergometer. This is extremely useful for those athletes who compete in short-term power events.

Muscle Strength and Endurance Tests

Several tests using static, dynamic, or isokinetic evaluations of muscular fitness are available in the HPL or DSU Community Center. The LIDO is an isokinetic computerized dynamometer that can assess speed, force, or torque in all major joints. The Chest-back dynamometer is a method used to determine absolute strength via a tension gauge device. Muscular endurance methods through simple callisthenic tests can be determined also.

Flexibility

Tests of flexibility can be easily assessed in the HPL. A variety of tests such as the sit-and-reach, shoulder elevation, and trunk extensions are performed to determine range of motion to indicate possible risk of injury from inflexibility. Also, the LIDO can assess ROM in all major joints. Other equipment such as the goniometer or inclinometer gives students the ability to measure ROM in several joints of the body.

Pulmonary Function

The HPL has the capability to measure basic lung function/vital capacity through use of the portable digital spirometer or hand-held basic spirometer.

Balance/Stability

A computerized posturography plate is available to determine center of pressure (coP) via a computerized software program and assessing overall stability scores through the 4 body planes.

Community Center

The University shares a working arrangement with the Madison Community Center located on the north edge of campus. Students are provided memberships and faculty/staff can use the full-service fitness facilities with special permission to test and evaluate physical fitness attributes or conduct research with their members.

Computer Lab

Faculty and students in the Exercise Science program have access to one computer lab with 24 work stations and a faculty station. The lab is equipped with two projectors, two screens, a digital scanner, and access to a printer. Software can be added per faculty requests.

Anticipated Changes

- The Exercise Science Program has established a cooperative relationship with Sioux Falls' hospitals, wellness centers, clinics, and fitness centers such as Avera Sports Institute and the

Sanford Wellness Center/Power Clinic. The last program review suggested such partnerships, and the Exercise Science students have benefited from this relationship over the past academic year. The only stipulation is that DSU Exercise Science students must qualify for these internships through a background check, current GPA, and letters of recommendation. The Exercise Science faculty internship coordinator informs all interested students of these prerequisites before applying for these positions.

- The Exercise Science Program has established a cooperative relationship with SDSU Health Promotion Program over the past year. A formal visitation was made during the fall semester of 2008 and possible collaboration for future projects has been established. This also was a recommendation made from the Exercise Science Program Review of 2004.
- Future recommendations would be to have the DSU Exercise Science Program become a training site for certification preparation of the NSCA. Currently, steps are being taken to create this once the Exercise Science Program can be officially recognized as an endorsed educational program of the National Strength & Conditioning Association. A DSU Exercise Science faculty member is now the Assistant State Director for the NSCA of South Dakota and should create further progress to complete this recommendation before the next Program Review cycle.

Inventory List for Human Performance Lab

Item	Quantity	Condition	Ownership
Blood pressure cuffs	25	Good	DSU
Stethoscopes	18	Good	DSU
Woodway Desmo Treadmill	1	Very good	DSU
SRM ergometer, including labtop	1	Good	DSU
Parvo True 1 metabolic cart, including labtop	1	Very Good	DSU
Monark bike ergometer	2	Model: very good Model: poor	DSU
LIDO Isokinetic Dynamometer	1	Good	DSU
Lactate Analyzer	1	Very good	DSU
AED (wall mounted)	1	Excellent	DSU
Shoulder Flex (wall mounted)	1	Poor/not functional due to missing pieces and calibration	DSU
Balance Bows	15	Good	Shim
Multi-function timer	1	Very good	Shim
Bassin Anticipation Timer	1	Very good	Shim
Choice Reaction Timer	1	Very good	Shim
Full Skeleton Model	1	Very good	DSU
Shoulder Joint Model	2	Very good	DSU
Elbow Joint Model	1	Good	DSU
Knee Joint Model	1	Good	DSU
Heart Model	1	Good	DSU

Item	Quantity	Condition	Ownership
Lange/Accuflex Skinfold Calipers	7	Good	DSU
Tape Measure	5	Good	DSU
Hand Grip Dynamometer	1	Good	DSU
Manual Lab Counter	1	Fair	DSU
Healthometer Scale	1	Fair	DSU
Accuflex Digital Inclinometer	1	Very good	DSU
Goniometer	2	Good	DSU
Chest-Back Dynamometer	2	Good	DSU
Pedometer	1	Good	DSU
Microspirometer	1	Good	DSU
Portable Spirometer	1	Good	Shim
Portable Calorimeter	1	Very good	Shim
Harpington Skinfold Calipers	2	Good	Shim
Calorimeter sterile mouthpieces	70	Very good	Shim
Health Promotion Kit	1	Good	Shim
Bertec Balance Plate	1	Very good	Shim/ Ironwear Fitness
12 lb medicine ball	1	Very good	DSU
8 lb medicine ball	1	Very good	DSU
Switch mats	2	Very good	DSU
Polar HR monitor	5	Very good	DSU
Hand-held Bioelectrical Impedance Body fat Analyzer	1	Good	DSU
Pull up bar	1	Very good	Shim
Accuflex Sit and Reach Board	2	Very good	DSU
3 piece Stair-ramp lower body power test	1	Very good	DSU

Part 8: Assessment and Strategic Plans

Program Objective

The program in Exercise Science is designed to prepare students to understand the nature and function of the human body during physical activity and to be able to deliver programs that promote health and wellness. The Bachelor of Science degree in Exercise Science is a professional degree to educate students to become exercise and fitness specialists or attain graduate degrees. Graduates will be employed by health, fitness, and athletic facilities, local and state governments, hospitals and clinics, universities and athletic programs, and by corporations with wellness programs.

Program Goals

Graduates should be proficient in the following areas:

- Understand the structure and function of the human body
- Recognize the importance of and participate in research in the area of exercise science
- Understand the relationship among physical activity, health, and nutrition
- Recognize ways to maintain health through injury prevention and rehabilitation
- Recognize ways to maintain health throughout the human lifespan
- Perform, teach, and evaluate physical activity skills
- Understand the basic principles and benefits of lifetime fitness

Assessment of Academic Program

A variety of measures are used to assess student competencies and the program goals. See Appendix E for the current Exercise Science Assessment Report. The following are the regular and systematic evaluations which are used to assess student skills and competencies as well as to modify and improve the program and its curriculum.

1. Course grades in major content courses in exercise science and physical education.
2. Graduate Surveys—administered one year and three years after graduation.
3. Employer Surveys—administered one year after graduation to the graduate’s employer.
4. Exercise Science Major Assessment Exam—locally developed examination covering program goals and objectives.

Course Grades

The Exercise Science Program failed to meet the established standards of performance for content course grades. In five of the eight content courses, 100% of the students did not earn a grade of “C” or better as established in the major assessment plan for those content courses. The academic rigor

of the program has increased over the past two years, and the Exercise Science faculty has revised the current standards of performance for this particular area.

Graduate Surveys

The assessment plan includes annual surveys of both graduates and employers. Over the last three years, at least 80% of the graduates rated their ability in the following areas with either good or very good (on a 5-point scale with 4 being good and 5 being very good).

1. Solve work-related problems;
2. Learning on the job;
3. Use information ethically;
4. Knowledge of academic areas;
5. Achieve and maintain a healthy lifestyle.

Employer Surveys

Overall, employers expressed satisfaction with exercise science graduates in all areas of the survey. One-hundred percent of the employers rated graduates' ability in the following as either good or very good (4 or 5 on a 5-point scale) during the past three years:

1. Written communications skills;
2. Appreciates cultural differences;
3. Ability to use information ethically;
4. Knowledge of academic area as it related to the position;
5. Ability to learn on the job; and
6. Overall professional capabilities.

Exercise Science Major Assessment Exam

The Exercise Science Major Assessment Exit Exam is a locally developed assessment and is a university graduation requirement for all Exercise Science majors. The assessment consists of 100 multiple choice questions covering all major goals of the program and is taken on Assessment Day during the student's final semester in the program. Students must achieve at least a 70% passing score on the exam.

The Exercise Science program assessment plan was revised during the Spring Semester of 2010. The National Strength and Conditioning Association's knowledge, skills, and abilities (KSA's) will be used as the guidelines for development of the subsequent major field assessment plan. Seven students took the exit exam in spring 2010 and for each question an analysis of correct answers was conducted. Faculty will review these results and decisions on reliability, validity, questions/answers appropriateness will need to be analyzed.

Future Directions

Keeping with the trends in Exercise Science, DSU will strive to provide a quality curriculum with applied hands-on training for majors to prepare them for the wide variety of careers and obtaining a

nationally recognized certification. The intent is to find challenging internships and practicum experiences that enhance career preparation. Outreach to the community and the region is expanding. DSU students are making an impact through internships nationally and internationally. The faculty, continually seek to improve the curriculum to reflect the needs of the students in preparation for careers in Exercise Science. All in all, the Exercise Science program at Dakota State University, given the size, is a challenging program that competitively is as good as any other similar program in the region.

Strategic Planning

The primary mission of Dakota State University, as stated in South Dakota Codified Law 13:59-2.2, “is to provide instruction in computer management; computer information systems; electronic data processing; other related undergraduate and graduate programs; two-year, one-year and short courses for application systems training in areas authorized; and the preparation of elementary and secondary teachers emphasizing the use of computers and information processing”.

In 2006 the president of DSU formed a committee to develop a new strategic plan for 2007 - 2012. The plan was titled “FOCUSED” and seven overarching goals were established for the university. The plan is intended as a guide to the institution and is intended to be a flexible, living document in that it must and will change as conditions change. It is intended as a guide to the strategic thinking of the faculty, staff, and administration of this institution. In the planning process, the committee critically assessed the external environment, surveyed our own strengths and challenges and reviewed our mission statement. Strategic issues were identified, outcomes established, goals set and action plans devised. A more complete description can be found at the following site:

<http://www.dsu.edu/about/strategic-plan.aspx>

Strategic Focus #1: Focus On Expanding Information Technology Leadership

- Outcome: By 2012, DSU will have three new cutting-edge graduate programs and five new cutting-edge undergraduate degree programs that reflect the institution's strong focus on its information-technology mission.

Strategic Focus #2: Focus On Optimizing and Sustaining On-Campus Enrollment

- Outcome: By 2012, DSU will attain an optimal on-campus enrollment of 1,400 undergraduate students.

Strategic Focus #3: Focus On Retention and Graduation by Providing an Exceptional Student Experience

- Outcome: By 2012, the first-year retention and six-year completion rates of first-time, full-time baccalaureate degree-seeking students will increase by 5% over the last 5-year average.

Strategic Focus #4: Focus On Advancing Applied Research

- Outcome: By 2012, DSU will increase its research activity by doubling the number of awarded grants/contracts and increasing the value of these grants/contracts to \$5 million.

Strategic Focus #5: Focus On Extending Educational Outreach

- Outcome: By 2012, DSU will increase self-support credit hour generation by 50%.

Strategic Focus #6: Focus On Promoting National and International Visibility

- Outcome: By 2012, DSU will achieve one nationally competitive award for academic excellence or innovation

Strategic Focus #7: Focus On Developing New Financial Resources

- Outcome: By 2012, the DSU Foundation net assets will reach \$10 million, the annual phonathon will reach \$150,000 in pledges, and the University will have new resources in place to support new programs and initiatives.

College of Education's Strategic Initiatives

Strategic Focus #1: Expanding Information Technology Leadership.

Objective #5: Expand use of information technology to increase capabilities for data-informed decision-making.

- Outcome #1: Create COE assessment data base
- Outcome #2: Facilitate accessibility of evaluation data to faculty and education majors

Strategic Focus #2: Optimizing and Sustaining on-campus Enrollment

Objective #5: Improve the College of Education as a state-of-the-art, user-friendly website

- Outcome: Restructure the COE website

Strategic Focus #3: Focus on Retention and Graduation by Providing an Exceptional Student Experience

Objective #1: Increase student engagement through an enhanced system of interlocking programs to support first-year students.

- Outcome: Increase faculty/staff interactions with COE majors during their first year on campus (freshman and transfers)

Objective #4: Investigate new and flexible schedules for course offerings.

- Outcome : Increase the number of courses offered online by COE faculty

Strategic Focus #4: Focus on Advancing Applied Research

Objective #3: Recruit and retain a cohort of research faculty through competitive compensation, appropriate workloads and course schedules, and support of grant-writing, publishing, and involvement in discipline specific professional organizations

- Outcome: Increase research productivity

Strategic Focus #5: Extend DSU's Education Outreach

Objective #1: Expand the range of online and alternative -location offerings.

- Outcome #1: Collaborate with other Regental institutions to create a secondary education online certification ONLY degree program
- Outcome #2: BSED in K-12 ELED/SPED Distance Delivery

Objective #3: Develop and expand appropriate programs and courses at University Center in Sioux Falls and other off-campus locations.

- Outcome: BS in Exercise Science at University Center (UC) in Sioux Falls

Strategic Focus #7: Develop New Sources of Revenue

Objective #1: Support the DSU Foundation in its efforts to conduct a successful comprehensive campaign.

- Outcome: 100% participation by COE faculty/staff to DSU annual campaign

Exercise Science Program

DSU intends to expand the Human Performance Laboratory to provide more students with a greater variety of training in all aspects of human performance testing and evaluation. With increased funding through grants and institutional money, purchases of new equipment will provide updated facilities to meet the growth in the program.

Faculty will look for undergraduate research opportunities to complement their interests and give the students opportunities to be a part of a research team with the possibility of presenting or publishing their work. Students in the program are encouraged to become members of national and regional organizations such as the American College of Sports Medicine and the National Strength and Conditioning Association.

The faculty in Exercise Science created an Exercise Science Club in 2009. The purpose of the Exercise Science Club is to:

- Offer Exercise Science majors the opportunity for extracurricular activities outside the academic area
- Increase students' knowledge and understanding of the professions through membership in professional organizations, and interaction with faculty, guest speakers and the local alumni in Exercise Science.
- Increase awareness of the national and state professional organizations that are available to Exercise Science students.
- Support students in their effort to graduate by providing additional academic support
- Strengthen the department through social and professional interaction between students, faculty, and staff support
- Initiate, organize, and assist in community activities which may be related to the fields within Exercise Science.
- Give undergraduates a chance to use research as a means to answer questions in their related fields.
- Encourage undergraduates to present their research findings at regional, national, and international professional conferences.
- Provide a forum for student ideas and discussion on issues of student interest.