

# **Exercise Science Self-Study Program Review Report**

**College of Education  
Dakota State University**

**On-Site Visit: April 19, 2018  
External Reviewer: Dr. Jim White**



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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 now 7,500 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 cyber security, computer science, teacher education, 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 doctoral, master’s, bachelor’s, and associate degrees in selected programs. DSU currently has two doctorate programs, a Doctor of Science in Cyber Security, and a Doctor of Science in Information Systems, as well as Master’s degrees in Business Administration, Analytics, Applied Computer Science, Educational Technology, Health & Information Systems, Information Assurance and Computer Security, and Information Systems. Bachelor of Science degree programs include majors such as Accounting, Biology, Business Administration, Computer Science, K-8 Elementary Education, K-8 Elementary Education/K-12 Special Education, English, Exercise Science, Health Information Administration, Computer Information Systems, Mathematics, 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 Education and Physical Education. All education majors graduate with a K-12 Educational Technology Endorsement in addition to their content area of preparation.

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 2015-2016 was 95% which demonstrates that employers consider DSU’s graduates highly qualified to meet their needs and have sought them out. Because of the technology-rich programs and solid placement record, undergraduate headcount at DSU has grown to 2,832 FTE students as of Spring, 2018 enrollment data. This compares to 1,633 FTE reported during the last Exercise Science review in 2010.

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. 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 continues to lead the region in providing the latest technology and access for its students, faculty, and staff.

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. Students are instructed on the latest apps and hardware to make learning relevant and cutting-edge.

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, 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 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. In 2009-10, three courses had title and/or course description change and a Senior Seminar course was added. In 2011-12, the South Dakota Board of Regents charged universities with redesigning programs to fit the 120-credit limit. During the 2016-17 academic year, changes in general education requirements resulted in minor changes in the Exercise Science program, but specializations were added to the program to enhance the student learning experience and better prepare students for future careers and graduate school work.

The last institutional program review of the Exercise Science major was conducted in spring 2010. Since that review, curriculum has changed to include additional electives to allow students flexibility to choose a more defined career path, as well as explore areas of interest. Other changes include hiring a new faculty member in 2016, increasing specific course grade requirements, establishing a new exit exam based on NSCA requirements, and upgrades to the human performance lab. Efforts to expand the graduate survey did not prove to be effective or helpful; outreach to students remains at the faculty level, with the Office of Institutional Effectiveness and Assessment and the DSU Alumni Foundation providing information as requested.

Program enrollment was at 95 students during the Fall 2009 semester; that number has dropped to 52 as of Spring 2018. Speculation for the drop in enrollment includes the fact that several regional schools have developed programs in exercise science in recent years, and there is a smaller pool of high school graduates in the region. The faculty and administration in the College of Education is motivated to increase both recruitment and retention in order to increase numbers of exercise science majors at DSU.

## 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. From this, the Office of Disease Prevention and Health Promotion, and other initiatives, HealthyPeople.gov was developed. "Every decade, the Healthy People initiative develops a new set of science-based, 10-year national objectives with the goal of improving the health of all Americans" (CDC, 2013). This is a decade long initiative, that began in 1990. Since then, Healthy People 2000, and 2010 have occurred. Currently, the Healthy People 2020 is in effect. Below is the initiatives of 2020 and information collected from 2010.

The **Healthy People Initiative 2020** (U.S. Department of Health and Human Services, 2017) cited the following overarching goals:

- Attain high-quality, longer lives free of preventable disease, disability, injury, and premature death.
- Achieve health equity, eliminate disparities, and improve the health of all groups.
- Create social and physical environments that promote good health for all.
- Promote quality of life, healthy development, and healthy behaviors across all life stages.

Key takeaway messages from the final review of **Healthy People 2010** state:

1. Significant progress toward achieving Healthy People 2010 objectives has been made over the decade.
2. Health disparities persist across the U.S. population.
3. Obesity remains an important challenge to monitor closely.
4. Data must be a priority.

In 2020, twelve topic areas broken down into 26 leading health indicators across the life stages include, but are not limited to, physical activity, clinical preventative services, obesity, and tobacco use. These are major examples that shape the goals of this program. As noted above, health disparities continue to be an issue despite the initiatives. Obesity, specifically, has had recent data published in 2017 showing that the trends in obesity continue to be problematic. The Global Burden of Disease 2015 Obesity Collaborators (2017) concluded in their research: "The rapid increase in the prevalence and disease burden of elevated BMI highlights the need for continued focus on surveillance of BMI and identification, implementation, and evaluation of evidence-based interventions to address this problem."

Senthilingam (2017) reports that the United States continues to have the greatest number of adults who are obese, and that more than 2 billion children and adults on the global scale fall under the obesity or overweight categories, or, 1/3<sup>rd</sup> of the world's population. This, as we know, causes health complications and death, and generally occurs due to sedentary behaviors (lack of physical activity) and poor diet. The initiatives of community education, and environmental intervention become important to address these issues. More so, important initiatives for those who are

diagnosed with obesity, is to help them lose weight. Focus on better controlling the consequences of obesity globally is another factor cited by the authorities in the article.

### **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 aforementioned health indicators as a means of improving our nation's health. The previous Dakota State University Exercise Science (EXS) program review 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. Economic factors have negatively affected companies such as Health Maintenance Organizations (HMOs) 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 years, there has been a push towards sports performance rather than health-related fitness. 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 Sports Medicine (Certified Exercise Physiologist), 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) via the Committee on Accreditation for the Exercise Sciences (CoAES). The National Strength and Conditioning Association (NSCA) offers an endorsement (Education Recognition Program - ERP) rather than an accreditation through CAAHEP. Since the DSU Exercise Science program is not able to qualify for ACSM accreditation based on student numbers, current equipment, lab space, etc., we think the NSCA ERP is the best fit for our program at the present time.

## Career Options

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

- Personal Training at Sports Performance Centers, Fitness Centers, or Commercial Gyms
- Corporate Fitness
- Sports or Fitness Administration i.e. YMCA, Sports Performance Centers, Recreation Centers

DSU's Exercise Science graduates are currently pursuing/have pursued an additional degree for:

- Nursing – LPN/RN/BSN
- Occupational Therapy Assistant - A.A. degree
- Physical Therapy Assistant - A.A. degree

DSU's Exercise Science graduates are currently pursuing (or have pursued) graduate degrees for:

- Physical Therapy – D.PT degree
- Occupational Therapy – O.PT degree
- Cardiac Rehabilitation – M.S. or M.A. degree
- Athletic Training- MAT degree
- Teaching Higher Education – M.S. or M.A. degree or doctoral level
- Medical doctor - M.D. degree
- Chiropractor - D.C. degree

## References

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## **Part 3: Academic Programs and Curriculum**

### **Departmental Deficiencies and Planned Remedies**

The Exercise Science program has made significant changes based on the two previous (2004 & 2010) Program Reviews. Since the 2010 Program Review, the following modifications were enacted:

- 1) The number of credits for a Bachelor's degree was reduced from 128 to 120 (per Board of Regents requirements in 2012).
- 2) Changes were made in the EXS 395 Practicum to provide more hands-on opportunities at the Community Center (in 2012)
- 3) EXS 350 L - Exercise Physiology Lab was added to the curriculum (in 2012)
- 4) PE 207 - Professional Prep: Strength Training was added as a required course (in 2012)
- 5) Some course names and numbers were changed to match course names and numbers at the other South Dakota regental schools (in 2016)

The Exercise Science department at DSU has a dedicated lab space in the Kennedy Center (KC 110 – Human Performance Lab). The lab contains 5 major pieces of equipment (Dartfish motion capture cameras and software, a LIDO isokinetic dynamometer, a Parvo One metabolic gas analysis system, a SRM Ergometer, and a Woodway Desmo treadmill) which are common in most exercise science labs. With this equipment, faculty are able to teach important physiological functions, and conduct research. In order to keep up with the exercise science field, accelerometers are the next pieces of equipment needed.

Exit exams for all majors are required by the South Dakota Board of Regents prior to graduation. In the spring of 2013, the Exercise Science exit exam was revised to reflect appropriate standards students should meet or exceed prior to graduation. The current exit exam is based on the NSCA's CSCS exam and the ACSM's Health Fitness Specialist (now Certified Exercise Physiologist) exam. The new exit exam was piloted in the spring of 2013 and adopted in spring of 2014. Students have to pass the exit exam with a score of 70% or higher before they can start their internship. If a student does not pass the exam, they have to retake it until they pass.

In the fall of 2012 (2012 catalog) there were 2 major changes to the Exercise Science degree: the 1st was the number of credits required for an Exercise Science degree was reduced from 128 to 120 (eliminated mostly elective credits); and the 2nd was that students needed to earn a "C" or better in all major (rather than the 5 previously selected courses) required courses (see list below). If a "C" is not achieved, the class has to be retaken and any courses in which the first class is a prerequisite cannot be started until a "C" is achieved in the first class. For example, EXS 350 - Exercise Physiology is a prerequisite for EXS 400 - Exercise Testing & Prescription. If a student earns a "D" in EXS 350, they cannot take EXS 400 until they retake EXS 350 and earn a "C" or better. The "C" requirement was implemented to ensure that Exercise Science graduates would be prepared for the exit exam, their internship, and future exercise/fitness-related jobs (as suggested in the previous program evaluation).



Another consideration for the Exercise Science program is to change the Exit Exam from the in-house exam to an actual certification exam (Certified Strength & Conditioning Specialist). We plan to pilot the new exit (certification) exam in the 2018-2019 school year and hope to implement it in the 2020-2021 school year (this was another suggestion in the 2010 program evaluation).

### **Instructional Methods**

The faculty utilizes a variety of instructional methods including lecture, laboratory, interactive multimedia, and use of Internet, especially Desire to Learn (D2L). Most classes involve at least a moderate degree of lecture and discussion. Several classes involve laboratory work, either in computer labs (Technology Integration), science labs (Human Anatomy, and Physiology), the Madison Community Center (Exercise Physiology lab, Practicum, Exercise Testing & Prescription, and Theory of Strength Training & Conditioning), and the Human Performance Laboratory (Exercise Physiology lab, Kinesiology, Exercise Testing & Prescription, Motor Learning & Development, Biomechanics, and Theory of Strength Training & Conditioning). 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, 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 (59-60 credit hours) and electives (17-18 credit hours). Since the 2010 program review, Exercise Science faculty have submitted significant curriculum changes to meet various needs of the exercise science majors in support of the health professions and course prerequisite requirements that have been established making for a more sequential, consistent curriculum.

The required major curriculum has been set to comply with the recommendations of the NSCA. The NSCA has endorsed the Exercise Science program at Dakota State University as an Undergraduate Strength and Conditioning program ERP. The ERP endorsement is good for 3 years, and DSU's current endorsement expires May 31, 2019.

## 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 (2016 catalog)

System-wide General Education Requirements\* **30**

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 **59-60**

BIOL 221	Human Anatomy w/Lab	4
BIOL 325	Physiology w/Lab	4
EXS 145	Introduction to Exercise Science/PE	1
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 350L	Exercise Physiology Lab	1
EXS 353	Kinesiology	3
EXS 376	Technology Integration	3
EXS 395	Practicum	2
EXS 400	Exercise Testing & Prescription	3
EXS 401	Clinical Exercise Physiology	3
EXS 452	Motor Learning & Development	3
EXS 454	Biomechanics	3
EXS 482	Theory of Strength Training & Conditioning	3
EXS 490	Senior Seminar	1-2
EXS 494	Internship	2
HIM 130	Basic Medical Terminology	2
HLTH 422	Nutrition	3
MATH 281	Introduction to Statistics	3
PE 207	Professional Preparation: Strength Training	1
PE 354	Prevention & Care of Athletic Injuries	3

Electives\*\* **19-20**

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

**Total Credits for the Exercise Science Major: 120**

## 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.

Marketing efforts using a brochure, website, and recruiting talks have been implemented to attract more highly qualified (academically) students into the program. The placement data for 2015 included 15 graduates, 3 of whom went onto graduate school. Of the 15 graduates, 10 were placed; one not seeking employment, while one was otherwise employed. The Exercise Science program reported an overall placement success rate of 93% with an average entry salary of \$26,487.

### Outcome and Placement rates:

- 2009 – 73%
- 2010 – 93%
- 2011 – 82%
- 2012 – 100%
- 2013 – 84%
- 2014 – 82%
- 2015 – 93%
- 2016 - 95%

### Enrollment numbers for EXS - Exercise Science Majors

Year	FA 09	SP 10	FA 10	SP 11	FA 11	SP 12	FA 12	SP 13	FA 13	SP 14	FA 14	SP 15	FA 15	SP 16	FA 16	SP 17
<b>#Student Enrollment</b>	95	85	96	89	89	90	88	88	90	80	76	67	72	65	70	52

## **Part 5: Faculty Credentials**

### **College of Education faculty:**

Scott Staiger, Ph.D., Associate Professor of Exercise Science, North Dakota State University

Kari Hall, M.A., Lecturer of Exercise Science, Hawai'i Pacific University

Scott Klungseth, Ed.D., Assistant Professor of Physical Education, University of South Dakota

### **Faculty Who Have Taught Required Courses in the Program (2010-2016):**

Kristal Baker, Ph.D., Professor of Biology, South Dakota State University

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

Jared Hottle, M.S., Instructor, Dakota State University

Jeff Palmer, Ph.D., Professor of Mathematics, Washington State University

Alex Guillen, M.S., Instructor of Physical Education and Strength Coach, Dakota State University

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

Gale Wiedow, Ph.D., Associate Professor of Physical Education, University of Nebraska - Lincoln

Donna Hazelwood, Ph.D., Associate Professor of Biology, Cornell University

Andrew Litz, M.S., Lecturer of Exercise Science, South Dakota State University

Anita Gust, M.S., Lecturer of Exercise Science, North Dakota State University

Gary Liguori, Ph.D., Adjunct Instructor of Exercise Science, North Dakota State University

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

### **Support Staff:**

Shelly Rawstern, Program Assistant II, College of Education

Billie Hoekman, Senior Secretary, College of Education (2010-2016)

Based on current enrollments the present faculty is capable of handling current courses offered in the Exercise Science major. Should enrollment rise significantly, and another exercise science faculty member is 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 DSU.

There is 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. The graduate dean's office is encouraging faculty to pursue research endeavors through financial opportunities and resources.

## 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 six days a week, but 24-hour access to most library resources and services is available through the library's website at <http://library.dsu.edu/library-homepage> (or select the "Library" under the "Academics" section of the DSU homepage). The website allows students, anywhere in the world, to search for information, request services, and learn more about the library. In cases where the library does not have access to a resource, it will provide it 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 an [Exercise Science Research Guide](#) which is maintained by a librarian. The subject guide provides guidance on finding resources such as books and scholarly articles as well as information on how to research and ethically use information.

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 Physical Education Index, Alt-Health Watch, *Web of Science*, *Medline (National Library of Medicine)*, *Academic Source Premier*, *ProQuest Research Library*, *Consumer Health Complete*, *Health Source: Consumer Edition*, *Health Source: Nursing/Academic Edition*, and others.

The Mundt Library has access to the major periodicals that are useful to Exercise Science research including: *Physical Therapy*, *Physical Therapy in Sport*, *Physical Therapy Research*, *Medicine and Science in Sports and Exercise*, *JOPERD*, *New England Journal of Medicine*, *Science News*, *Journal of Nutrition*, *JAMA*, *Nutrition Reviews*, *Physical Educator*, *Perspectives in Biology and Medicine*, *Scientific American*, *Science*, *Nature*, *Scholastic Coach*, *American Medical News*, *American Scientist*, *Journal of Teaching in Physical Education*, *Mayo Clinic Proceedings*, 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 books and e-books using search terms like exercise, physiology, fitness, biomechanics or other related keywords. Additional publications are purchased as appropriate for the exercise science degree, following recommendations from faculty and/or advice from professionals in the field.

It is part of the mission of the Mundt 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 Reference Instruction Librarian and Digital Design & Access Librarian are highly skilled at collaborating with faculty to design

research assignments that will help accomplish course goals and provide students with a successful research experience. Library faculty are 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.

**Online@DSU** <http://dsu.edu/academics/online-education>

Online@DSU 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 degree is not an online program nor delivered at another site, a number of the courses are delivered online including HLTH 320 - Community Health, HLTH 370 - Stress Management, HLTH 422 - Nutrition, and certain EXS 492 - Topics courses.

Online@DSU is staffed with the Director, a State Authorization Coordinator, an Instructional Design Specialist, and a Program Assistant. This team serves the needs of students who are enrolled in the online courses at DSU. Faculty and students employ Desire2Learn (D2L) for academic interaction and course delivery. D2L support is provided by Online@DSU and Information Technology Services (ITS).

**Information Technology Services (ITS)** <http://dsu.edu/academics/tablet-program>

Information Technology Services (ITS) provides centralized hardware, software, and network support for the university. The mission of ITS is to support the integration of information technology into the academic programs and administrative offices 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. Each faculty member is issued a Fujitsu tablet PC or MacBook Pro according to their individual preference. Devices are replaced on a cycle or as needed. Maintenance and upgrades are provided through the central Help Desk located in the Mundt Learning Commons.

### **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 an assessment coordinator and a senior secretary in the College of Education to assist with these responsibilities, including the Exercise Science program.

### **College of Education Budget**

The College of Education's current annual operating budget is approximately \$45,000. Approximately \$9,000 in additional monies is designated for Exercise Science/Physical Education. The designated funds provide for equipment, supplies, and selected travel for faculty and students in the programs. Future university plans in the area of athletic development may result in a new exercise science lab facility; as a result, limited equipment has been purchased during the last few

years. The Provost offers innovation grants and faculty have funded some additional projects, at least partially, through that fund.

### **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. Salaries have remained flat, with no raise for the current academic year, and none foreseen for the next. 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. The Kennedy Center houses 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), are taught in the Habeger Science Center. The DSU Memorial Fieldhouse and/or Madison 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 DSU, 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, the Human Performance Laboratory, the DSU Memorial Fieldhouse, and the Madison Community Center.

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 Submaximal 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 calisthenic 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.

## **Madison 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 workstations 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 years. 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.

*Inventory List for Human Performance Lab*

<b>Item</b>	<b>Quantity</b>	<b>Condition</b>
Blood pressure cuffs	25	Good
Stethoscopes	18	Good
Woodway Desmo Treadmill	1	Very good
SRM ergometer, including laptop	1	Good
Parvo True 1 metabolic cart, including laptop	1	Very Good
Monark bike ergometer	2	Poor, very good
LIDO Isokinetic Dynamometer	1	Good
Bosch cameras & tripods (Dartfish)	2	Very good
Vertec	1	Very good
Just Jump mat	1	Very good
Lactate Analyzer	2	Very good
AED (wall mounted)	1	Excellent
Shoulder Flex (wall mounted)	1	Poor/not functional
Full Skeleton Model	1	Good
Shoulder Joint Model	2	Very good
Elbow Joint Model	1	Good
Knee Joint Model	1	Good
Heart Model	1	Good
Hip Model	1	Good
Leg muscles model	1	Good
Arm muscles model	1	Good
5-lb muscle and 5-lb fat model	1	Very good
Skinfold Calipers (5 – Baseline, 3 – Lange)	8	Good
Tape Measure	7	Good
Hand Grip Dynamometer	1	Good
Stopwatch (4 – Accusplit, 2 – Sportline)	6	Fair – good
Manual Lab Counter	1	Fair
Healthometer Scale	1	Fair
Accuflex Digital Inclinator	1	Very good
Goniometer	10	Good
Chest-Back Dynamometer	2	Good
Pedometer	1	Good

<b>Item</b>	<b>Quantity</b>	<b>Condition</b>
Microspirometer	1	Good
12 lb. medicine ball	1	Very good
10 lb. medicine ball	1	Very good
8 lb. medicine ball	1	Very good
4 lb. medicine ball	1	Very good
Switch mats	2	Very good
Polar HR monitor	5	Very good
Sportline HR monitor	2	Very good
Hand-held Bioelectrical Impedance Body Fat Analyzer	1	Good
Omron – Fat Loss Monitor with scale	1	Very good
Pulse oximeter	1	Very good
Aerobic step (4 steps, 16 risers)		Very good
Fitness step	1	Very good
Accuflex Sit and Reach Box	2	Very good

## **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.
- Understand the basic principles of exercise testing and prescription for the general population and athletes.

### **Assessment of Academic Program**

A variety of measures are used to assess student competencies and the program goals. 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. Exercise Science Major Assessment Exam (Exit Exam) — locally developed examination covering program goals and objectives. Students must achieve a passing score of at least 70% on the exam.

### **Course Grades**

The Exercise Science Program assesses content knowledge in the following eight courses required in the major: EXS 180, EXS 252/452, EXS 350, EXS 353, EXS 400, EXS 405/482, EXS 454, and HLTH 422. These courses relate to the Exit Exam and students are required to earn a grade of “C” or better.

**Final grades for major core courses**

**EXS 180 - Foundations of HPER**

Semester	# Students	overall GPA	Percentage of Grade Given				
			A	B	C	D	F
Fall 2009	19	3.16	42%	32%	26%	0%	0%
SP 2010	15	2.87	20%	47%	33%	0%	0%
FA 2010	13	3.00	23%	54%	23%	0%	0%
SP 2011	15	3.00	13%	73%	13%	0%	0%
SU 2011	7	3.29	57%	14%	29%	0%	0%
FA 2011	24	3.25	46%	42%	8%	0%	4%
SP 2012	18	2.78	22%	44%	28%	0%	6%
FA 2012	21	3.24	38%	48%	14%	0%	0%
SP 2013	11	2.73	27%	36%	27%	9%	0%
FA 2013	19	3.21	64%	11%	16%	5%	5%
SP 2014	14	2.57	29%	29%	21%	14%	7%
FA 2014	20	2.60	30%	40%	0%	20%	10%
SP 2015	Not offered						
FA 2015	24	2.71	21%	38%	33%	8%	0%
SP 2016	9	3.56	89%	0%	0%	0%	11%
FA 2016	21	2.05	14%	24%	33%	10%	19%
SP 2017	5	2.20	20%	20%	40%	20%	0%

Note: 90.6% of the 255 students who took this course earned a “C” or better

**EXS 350 - Exercise Physiology**

Semester	# Students	overall GPA	Percentage of Grade Given				
			A	B	C	D	F
FA 2009	27	3.29	52%	26%	22%	0%	0%
FA 2010	19	2.16	16%	16%	37%	32%	0%
FA 2011	23	2.04	4%	30%	43%	9%	13%
FA 2012	24	2.42	4%	33%	63%	0%	0%
FA 2013	13	2.54	15%	31%	46%	8%	0%
FA 2014	18	2.56	28%	11%	50%	11%	0%
FA 2015	20	2.75	20%	35%	45%	0%	0%
FA 2016	13	2.46	23%	31%	23%	15%	8%

Note: 89.2% of the 157 students who took this course earned a “C” or better

**EXS 353 - Kinesiology**

Semester	# Students	overall GPA	Percentage of Grade Given				
			A	B	C	D	F
SP 2010	14	3.14	50%	29%	14%	0%	7%
SP 2011	10	2.90	20%	50%	30%	0%	0%
SP 2012	12	3.08	25%	58%	17%	0%	0%
SP 2013	18	2.33	6%	44%	28%	22%	0%
SP 2014	21	2.95	38%	29%	24%	9%	0%
SP 2015	18	2.89	28%	44%	17%	11%	0%
SP 2016	19	3.21	47%	37%	11%	0%	5%
SP 2017	8	3.13	50%	25%	12%	12%	0%

Note: 90.8% of the 120 students who took this course earned a “C” or better

### EXS 400 - Exercise Testing and Prescription

Semester	# Students	overall GPA	Percentage of Grade Given				
			A	B	C	D	F
SP 2010	12	2.75	25%	42%	17%	17%	0%
SP 2011	20	2.80	30%	30%	35%	0%	5%
SP 2012	22	2.46	23%	18%	45%	9%	5%
SP 2013	19	2.58	5%	47%	47%	0%	0%
SP 2014	14	3.00	43%	14%	43%	0%	0%
SP 2015	13	2.69	23%	31%	38%	8%	0%
SP 2016	23	2.70	22%	35%	39%	0%	4%
SP 2017	10	2.10	20%	50%	0%	20%	10%

Note: 91.7% of the 133 students who took this course earned a “C” or better

### EXS 454 - Biomechanics

Semester	# Students	overall GPA	Percentage of Grade Given				
			A	B	C	D	F
FA 2010	21	2.57	24%	29%	33%	9%	5%
FA 2011	14	2.43	14%	14%	72%	0%	0%
FA 2012	17	3.24	53%	29%	12%	0%	6%
FA 2013	18	3.11	44%	28%	22%	6%	0%
FA 2014	18	3.28	61%	22%	6%	6%	6%
FA 2015	15	3.07	40%	40%	13%	0%	7%
FA 2016	18	3.56	61%	33%	6%	0%	0%

Note: 93.4% of the 121 students who took this course earned a “C” or better



**EXS 452/252 - Motor Behavior**

Semester	# Students	overall GPA	Percentage of Grade Given				
			A	B	C	D	F
SP 2013	25	2.80	16%	56%	20%	8%	0%
SP 2014	19	2.84	26%	53%	11%	0%	11%
SP 2015	22	3.40	55%	36%	5%	5%	0%
SP 2016	22	3.36	50%	46%	0%	0%	5%
SP 2017	18	2.55	17%	33%	39%	11%	0%

Note: 92.5% of the 106 students who took this course earned a “C” or better

**EXS 482: Theory of Strength Training & Conditioning;  
Previously 405: Physiological Methods of Training**

Semester	# Students	overall GPA	Percentage of Grade Given				
			A	B	C	D	F
SP 2013	19	2.63	11%	47%	37%	5%	0%
SP 2014	17	2.70	29%	24%	35%	12%	0%
SP 2015	9	2.66	33%	33%	22%	11%	0%
SP 2016	22	3.13	27%	18%	50%	0%	5%
SP 2017	13	2.46	15%	31%	46%	0%	8%

Note: 92.5% of the 80 students who took this course earned a “C” or better

### HLTH 422 - Nutrition

Semester	# Students	overall GPA	Percentage of Grade Given				
			A	B	C	D	F
FA 2012	30	2.97	27%	47%	23%	3%	0%
SU 2013	20	2.80	30%	45%	10%	5%	10%
FA 2013	25	2.12	16%	24%	36%	4%	20%
SU 2014	18	2.78	22%	33%	44%	0%	0%
FA 2014	25	2.20	8%	28%	44%	16%	4%
SU 2015	10	2.90	30%	30%	40%	0%	0%
FA 2015	15	2.80	33%	33%	20%	7%	7%
SU 2016	22	2.55	18%	41%	27%	5%	9%
FA 2016	19	2.32	26%	21%	26%	11%	16%
SU 2017	11	2.36	18%	18%	55%	0%	9%

Note: 86.7% of the 195 students who took this course earned a “C” or better

#### **Exercise Science Major Assessment (Exit) 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 preferably taken during the student’s final semester in the program.

Exit exams for all majors are required by the South Dakota Board of Regents prior to graduation. In the spring of 2013, the Exercise Science exit exam was revised to reflect appropriate standards students should meet or exceed prior to graduation. The current exit exam is based on the NSCA’s CSCS exam and the ACSM’s Health Fitness Specialist (now Certified Exercise Physiologist) exam. The new exit exam was piloted in the spring of 2013 and adopted in spring of 2014. Students have to pass the exit exam with a score of 70% or higher before they can start their internship. If a student does not pass the exam, they have to retake it until they pass.

## Office of Institutional Effectiveness & Assessment (OIEA)

Additional assessments regarding the following can be found in **Appendix A**:

- Program, college and university enrollment
- Student diversity enrollment
- Degrees awarded by the program, college and university
- Persistence rates for the program, college and university
- One year retention rates for the program, college and university
- Five and six-year graduation rates for the program, college, and university

## Strategic Planning (2015-2020)

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, and other related undergraduate and graduate programs. The secondary purpose is to offer two-year, one-year and short courses for application and operator training in the areas authorized by this section. This authorization includes the preparation of elementary and secondary teachers with emphasis in computer and information processing. Except for degree programs in existence during the 1983-84 academic year, the unique baccalaureate programs authorized for Dakota State University shall not be duplicated by the Board of Regents. **Source:** SL 1984, ch 142, § 2; SL 1989, ch 170, § 3.”

DSU programs have evolved to include cutting-edge technology infusion into all majors. Faculty at the university primarily engage in teaching, but scholarship and service are also important to the overall mission of the university. The current strategic plan, “*Excellence Through Innovation 2020*” can be found at: <https://dsu.edu/assets/uploads/resources/Strategic-Plan.pdf>

### “Excellence Through Innovation 2020”

#### Strategic Goal #1: Educate to Inspire

- ❖ Dedicated to academic quality and excellence
- ❖ **Exercise Science Goal to align to SG #1: Increase Enrollment**

Faculty is acutely aware of the need to increase enrollment in the Exercise Science program. Experiencing a drop in enrollment from 95 students to 52 students in eight years is an area of great concern. Not only do efforts at recruitment need to be made in a significant manner, efforts in the area of retention of students in the program will need to be addressed. Increasing enrollment will be a focus area for administration and faculty in the upcoming year.

## Strategic Goal #2: Grow to Thrive

❖ Dedicated to student access and success

❖ **Exercise Science Goal to align to SG #2: Revitalize the Exercise Science Club**

The faculty in Exercise Science created an Exercise Science Club in 2009. Over the years club participation has dwindled. Faculty would like to revitalize the club with new student leadership, as well as activities and speakers relevant to student career goals and areas of interest. The goal is to have 75% of students in the major join the Exercise Science Club, 50% attend a state, regional or national conference.

## Strategic Goal #3: Innovate to Transform

❖ Dedicated to continuous improvement

❖ **Exercise Science Goal to align to SG #3: Development of New Survey Instrument**

Prior assessment plans included annual surveys of both graduates and employers. In 2016 these surveys were discontinued under the direction of the DSU Office of Institutional Effectiveness and Assessment. The survey results of the previous years were limited in responses for the Exercise Science program; this limitation and the discontinuation of the surveys did not allow for appropriate, reportable data. In response to these limitations, the Exercise Science faculty, College of Education Dean, and the DSU OIEA intend to collaborate to produce a new survey and method to collect data for future use.

- a. Possible items for graduate survey:
  - i. Solves work-related problems
  - ii. Learns on the job
  - iii. Uses information ethically
  - iv. Knowledge of academic areas
- b. Possible items for employer survey:
  - i. Written communication skills
  - ii. Appreciates cultural differences
  - iii. Ability to use information ethically
  - iv. Knowledge of academic areas as relates to the position
  - v. Ability to learn on the job
  - vi. Overall professional capabilities

## **Strategic Goal #4: Collaborate to Lead**

- ❖ Dedicated to external and internal partnerships
- ❖ **Exercise Science Goal to align to SG: Form an Exercise Science Advisory Committee**

Starting an advisory committee for the Exercise Science program will ensure those working in the field have opportunity to provide critical feedback to faculty and administration, create opportunities for partnerships, and establish internship placements for students in the program. It is anticipated the group will include representatives from campus as well as from athletic training, physical therapy, occupational therapy, rehabilitation services, corporate health and wellness, and the K-12 system. The goal is to have the advisory committee operational in the fall of 2018.

## **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. Students complete a practicum experience prior to an exercise science related internship that aligns with their career goals. Outreach to the community and the region is expanding. The faculty, continually seek to improve the curriculum to reflect the needs of the students in preparation for careers in Exercise Science.

We plan to pilot the new CSCS exit exam in the 2018-2019 school year. In addition, there have been program tracks added to the curriculum, that students can use as a curriculum guide for graduate school prerequisites. The tracks can be found on the Exercise Science Check Sheet 2017-2018 document. Overall, 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.