Exercise Science Program Review

College of Education

Dakota State University

Onsite Visit: April 19, 2018

External Reviewer:

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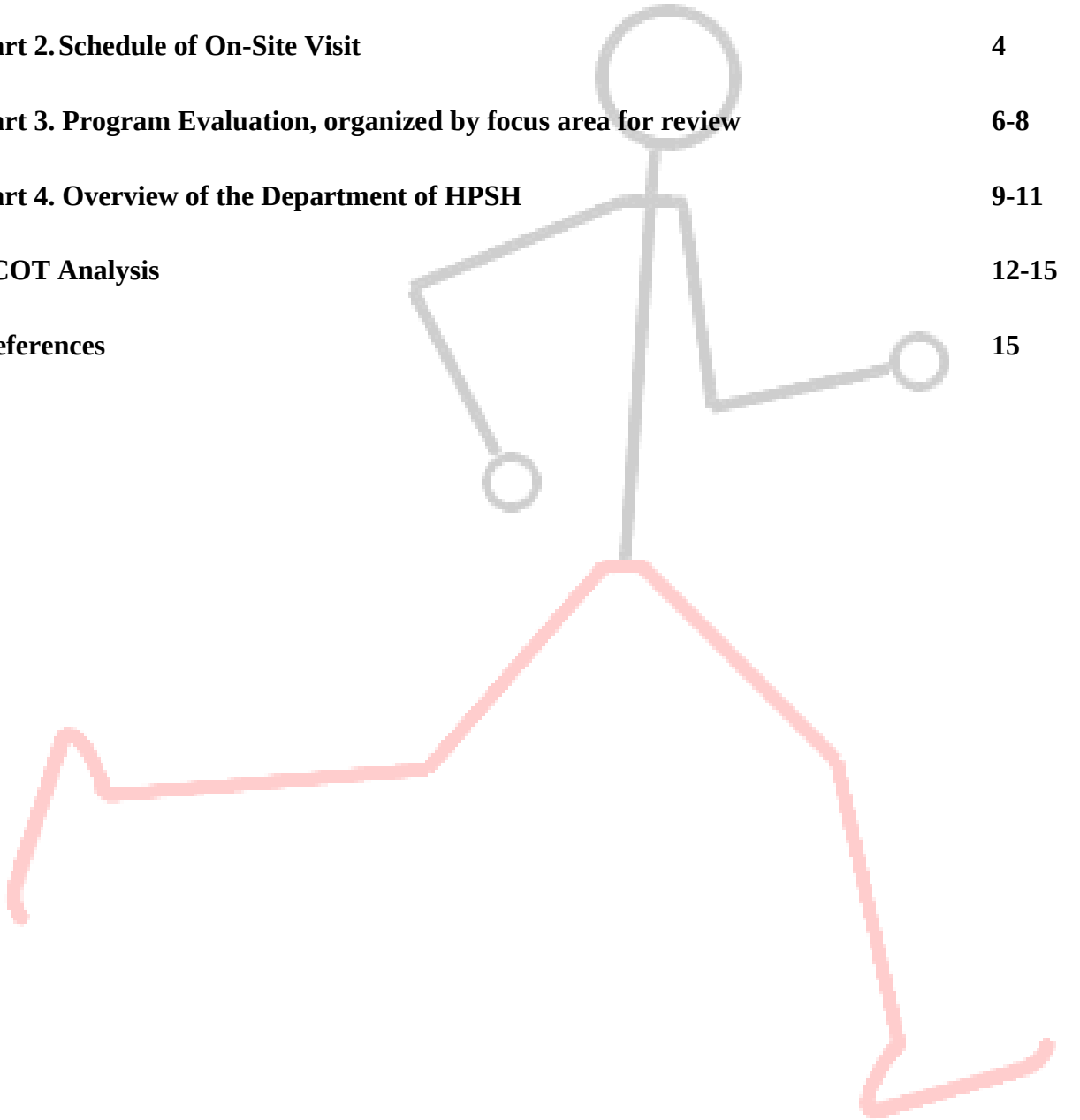


Part 1: Executive Summary of Findings

The Bachelor of Science in Exercise Science (EXSC) offered at Dakota State University (DSU) is a degree designed to prepare students for a career in a variety of occupations. Over the past 15 years, nationally, this degree has become a viable major for students who desire the flexibility of a degree that can lead to employment immediately after completion of an undergraduate degree or lead to acceptance to a more lucrative graduate degree. According to 2017 – U.S. Bureau of Labor Statistics[1], the demand for those who complete the EXSC degree will continue to increase (grow "above average"} over the next decade (+13% increase – see Table 1). The aging population (Baby Boomers), those battling chronic disease (heart disease, cancer, diabetes, etc.) and chronic conditions (hypertension, anxiety/mental health, diabetes, etc.) will need guidance from exercise science/health promotion professionals. Additionally, EXSC professionals can help in training athletes, and those seeking to maintain health/prevent disease across age and disease/health status spectrum.

Table 1: Bachelors of Exercise Science Degree/Exercise Physiologist salary information

2017 Median Pay	$49,090 per year $23.60 per hour
Typical Entry-Level Education	Bachelor's degree
Work Experience in a Related Occupation	None
On-the-job Training	None
Number of Jobs, 2016	15,100
Job Outlook, 2016-26	13% (Faster than average)

Often students who choose this major find employment in:

- corporate and private fitness
- strength and conditioning/sport performance
- community and hospital-based wellness
- rehabilitation programs (cardiac rehab, diabetes exercise, etc.)
- graduate studies (Physical Therapy, Occupational Therapy, Chiropractic medicine, Athletic Training, etc.)

The DSU Exercise Science faculty are knowledgeable and amicable professionals who are genuinely concerned about the academic success and professional success of their students. Since the last review (2010) faculty have achieved and maintained the status of a National Strength and Conditioning Association (NSCA) endorsed curriculum, which helps with recognition of program and potentially helps to recruit students. The NSCA, along with the American College of Sports Medicine, are the preeminent EXSC professional organizations in the world.

Discussions with the students illustrated that they complete a challenging curriculum and are academically well prepared, and seemed to have a passion for their studies. Specifically, they value the hands-on learning opportunities afforded by the EXCS degree. Student state that internship opportunities (i.e. *Sanford Health*) and courses that integrate experiences at the *Madison Community Center* are critical learning opportunities that make the EXSC program unique. Similarly to findings in the previous review, students who have an interest in graduate degrees are advised to complete a year of anatomy and physiology, chemistry, physics, psychology courses, as these are required pre-requisites to the majority of these highly competitive programs. Statistics is also a required course for most graduate programs and helps provide an empirical foundation for understanding research. Faculty should work to add this course to their curriculum.

Some noteworthy points of interest of DSU's EXSC program include:

- While the facilities/lab space is modest, the equipment seems adequate and accessible to students.
- As DSU has a technology focus, the associated technology associate with this degree appears to be satisfactory.
- The most significant programmatic changes since the last review include requiring students to earn a "C" or better in the Exercise Physiology course to be able to continue on to senior level courses.
- The addition of an exit exam, which students must re-take until they pass.

Concerns expressed by administration include the decreasing number of students choosing the EXSC major. In 2010 -13 EXSC had 88-96 majors, with its peak in 2010. No specific reasons for the decrease in the number of majors were identified by administrators, faculty or students. A potential reason is the fact that around 2013 DSU added a General Studies (GS) degree, which has had increased student interest since its inception. The GS degree offers flexibility to students, and may attract students who cannot handle the academic rigor/demands of other majors offered by DSU, including the EXSC degree.

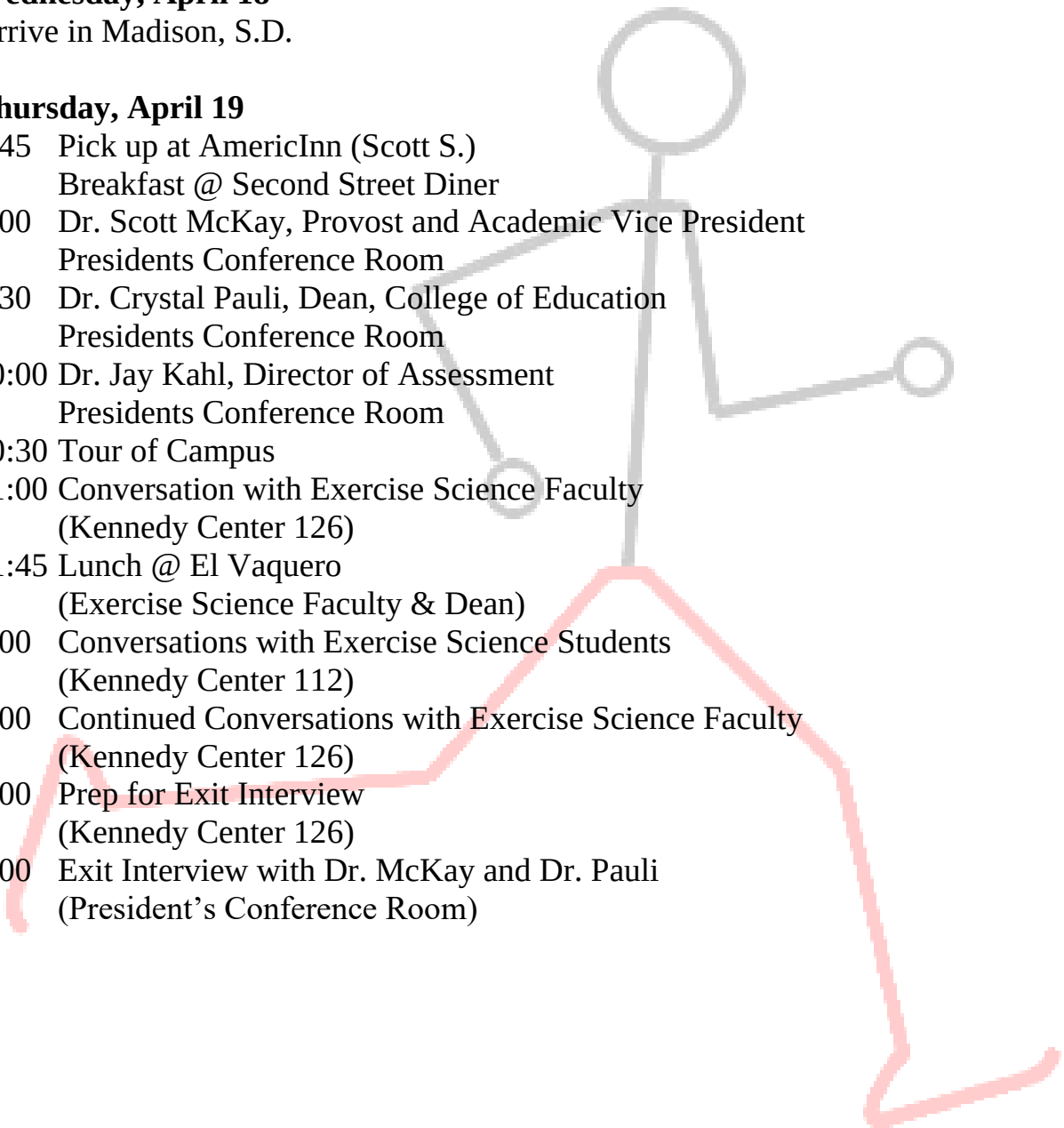
In summary, DSU's Exercise Science degree offers multiple potential career opportunities to students in the region. The faculty and students seem to have a high degree of pride and satisfaction in the program. The EXSC degree provides students with opportunities to excel through purposeful experiences resulting in practical skills, interpersonal communication, use of technology, and an appreciation of individual differences. The faculty strive to create a challenging learning environment for their students where the knowledge of technology and communication lead to student success. Although, recent numbers of students have decreased, the degree and courses within the degree are positioned to grow. Potential areas for growth and program improvement are discussed in the section titled *Summary of Change/Recommendations for Improvement* ***(Part 4).***

Part 2: Schedule of On-Site Visit

On-Site Itinerary

Wednesday, April 18
Arrive in Madison, S.D.

Thursday, April 19
7:45 Pick up at AmericInn (Scott S.)
Breakfast @ Second Street Diner
9:00 Dr. Scott McKay, Provost and Academic Vice President
Presidents Conference Room
9:30 Dr. Crystal Pauli, Dean, College of Education
Presidents Conference Room
10:00 Dr. Jay Kahl, Director of Assessment
Presidents Conference Room
10:30 Tour of Campus
11:00 Conversation with Exercise Science Faculty
(Kennedy Center 126)
11:45 Lunch @ El Vaquero
(Exercise Science Faculty & Dean)
1:00 Conversations with Exercise Science Students
(Kennedy Center 112)
2:00 Continued Conversations with Exercise Science Faculty
(Kennedy Center 126)
3:00 Prep for Exit Interview
(Kennedy Center 126)
4:00 Exit Interview with Dr. McKay and Dr. Pauli
(President's Conference Room)



Part 3: Program Evaluation, organized by focus area for review

The information below was provided to me by DSU EXSC faculty –as part of their *Program Goals and Strategic Planning* document (2015 – 2020). Goals/area of focus included:

I. Increase Enrollment
II. Grow the Exercise Science Student Club
III. Graduate Survey
IV. Engage Stakeholders/Form and Advisory Board
V. Sustain adequate program resources

These goals seem appropriate and have a relevant purpose. I would suggest that these goals should integrate some measurable or quantifiable components where relevant. For example what is the realistic desired number of majors given the number of faculty, lab/classroom space? By when (timeframe) do you wish to accomplish the goal? Convene advisory board every odd year? Other specific benchmarks to know if a goal has been achieved?

Enrollment (I.)

The decline in enrollment is of concern. However, I find it interesting that the actual number of EXSC graduates (degrees awarded) was at its highest during the most recent years (see Table 3 below). This suggests that although less students were enrolled, they were the program were of high quality (able to complete the challenging courses). This may be an issue of quantity vs quality. Or it may be a natural undulation that sometimes happen in majors at all universities; it should be noted that the College of Education enrollment also dropped a similar percentage during same time frame. More time is needed to determine the true nature of this trend. In summary, the American College of Sports Medicine, the largest and most respected exercise science-related organization in the world will only credential programs that have a faculty-to-student ratio of 30-1 as part of their University Connection Program.[2] DSU's Full Time Equivalent (FTE) assigned to EXSC is very close to this recommendation.

Table 1: Program, College and University Enrollments

	Fall 2010	Fall 2011	Fall 2012	Fall 2013	Fall 2014	Fall 2015	Fall 2016	Fall 2017
Exercise Science (BS)	96	88	88	90	76	72	70	56
College of Education	418	411	402	393	353	389	378	360
University Enrollment	3101	3102	3110	3129	3047	3145	3190	3307

Degrees Awarded

Table 3: Number of Degrees Awarded by Academic Year

Program	Academic Year							
	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Exercise Science (BS)	18	10	13	19	17	15	11	24
College of Education	70	75	63	71	61	54	59	76
University	313	357	384	409	401	409	466	486

An academic year is defined as summer, fall, and spring for the purpose of this report.

Engaging DSU EXSC Students (II.)

Practical Experiences -Hands-On: The well-known American humorist Will Rogers once said, "Even if you are on the right track, you'll get run over if you just sit there." This is true with many different careers. Once a student determines where they want to go, it is imperative they begin setting goals on how to get there while garnering "real world" opportunities. These real world or "practical" experiences provide the direction the students need to make sound career-related decisions. Involving themselves with hands-on opportunities expands a student's knowledge and enhances the practical application of their major coursework through appropriate career-related experiences. As a result, the internship should be the student's culminating experience and has proven to be mutually beneficial to the students as well as the host organization. The students gain valuable knowledge of an organization while the host evaluates a potential future employee.

These "real world" experiences take the shape of both "practicums" and "internships" and in many instances become the most important and potentially challenging aspect of a student's academic career. These practical experiences afford the student with a "test drive" to see if their interests match the reality of working in their area of interest. Hands-on experiences also allow a student to apply the knowledge learned in class to real world experiences. Working in the industry of their choice reinforces their resume while increasing the size of their professional network. In some situations, these contacts can last a lifetime. In other words, the internship becomes a capstone experience that can quite possibly lead to full-time employment.

A vibrant exercise science club can create an environment that merges academics, philanthropy, fun, volunteering, and career exploration. At the start, you might want to pick one or two areas to focus on. For example, you might want to start with one academic meeting and one social meeting a month. Some clubs will identify a monthly or semester theme – exercise at altitude, exercise and pregnancy, measurement of physical activity – and focus their journal club selections around that theme. This allows for a deeper exploration of a topic that might only get a short mention in a classroom setting. The club may pick a local charity or cause – autism, Special Olympics, the local food pantry – and put together an event, such as a short fun run, to raise money for that charity. This is not only beneficial for the charity, but is a good way to gain exposure for the club, and give the members other types of experience in organization and leadership.

Connect with Stakeholders (i.e. Recent Graduates, Internship Supervisors, Employers –III & IV)

William Butler Yates once remarked, "Education is not filling a pail, but the lighting of a fire". The right conditions must exist in order to light any fire. Students deserve a good return on their investment and most of them recognize that receiving the appropriate knowledge and skills impacts their future success. Surveying stakeholder satisfaction and experiences with EXSC majors is a worthy endeavor. These opinions provide faculty with specific indicators if the curriculum is perceived of value.

Program Resources (V.)

Quality programs require highly-qualified faculty. As a result, a high percentage of the undergraduate level student credit hours need to be taught by professionally-qualified faculty members. While adjuncts can bring real world experience, they cannot provide the mentorship and presence of a full-time faculty member. In addition, due to the obligations of their "real" job they cannot provide the commitment of a full-time faculty member. If the exercise science program were to see an increase in enrollment, adding a full-time faculty may be appropriate.

The human performance lab and equipment are unique aspects of the exercise science major. As reported by the faculty, the current lab equipment and space are adequate. Replacing and upgrading lab equipment as needed should be supported by the administration. The lab and equipment help support the hands-on nature of the degree.

Part 4: Summary of Recommendations for Change/Improvement

The Exercise Science students and program graduates interviewed seemed dedicated to their majors and exude a sense of confidence and pride. They are inquisitive yet have no qualms to point out when they perceive an inadequacy. They expect a great deal from themselves as well as their faculty. As overall observation, DSU's EXSC degree is a valuable option for future and current students.

1) *Add a Minor:*
   The content covered with EXSC courses is valuable to other majors at DSU. Adding a Human Performance/Fitness Leadership/ (working title) minor could potentially serve the students pursuing a Physical Education teaching degree. The minor could also serve students who are in other majors (General Studies, Elementary Education) who are interested in gaining basic knowledge in fitness, nutrition, fitness facility management, etc. By adding a minor, total enrolment in courses would likely be higher. At Bemidji State University, in 2011 we created a two-track minor (Human Performance) that has been a popular choice for students. Additionally, some students have selected the minor, then have gone on to choose the Exercise Science major. Lastly, students mentioned they were concerned with some of the classes being very small. This concern should be noted, as students also learn from peer to peer interactions.
2) *Create a More Direct Student Recruitment Interface with Potential/Current Student Athletes:*
   In my experience, a high percentage of students who select to study in the field of EXSC have had some success in competitive sport or recreational fitness. It was stated by Dr. Scott McKay, DSU currently has 250-300 student athletes and an interest in increasing this total. When student-athletes are recruited (visit) to DSU, they need to have a chance to meet with EXSC faculty. During official visits to campus or campus tours faculty should be given the opportunity to meet with students and parents, if appropriate. I give students a tour of the lab space and discuss the hands-on aspects of the major.
3) *Develop Articulation Agreements/2+2 Pathways:*
   Madison offers a small-college experience that may be attractive to students (and sometimes parents) who are interested in an educational experience that has a hometown feel. Initially, many students often seek out a local Community Colleges (CC) to begin their educational journey. Minnesota, Iowa and Nebraska CC may have students who want to continue their higher education at DSU. By accepting courses like Anatomy and Physiology, Introduction to Exercise Science, general science courses etc. may make transfer into the EXSC major at DSU attractive. Visiting CC that have a history of transferring to DSU and working with the DSU admissions office in developing a targeted recruitment plan may serve to stimulate growth in the EXSC major.

4) *Grow Student Engagement, Satisfaction and Foster the Sense of an Authentic Learning Experience:*
   The faculty and students both mentioned the need to reinvigorate the Exercise Science club. This should be a priority. Specifically, the club should find one or two activities that bring interest to and involvement in the club. A campus health/fitness fair, helping with a local Special Olympics event, or obstacle/fitness course challenge (Tough Mudder, American Ninja, etc) may be ideas. Students also noted the need for the opportunity to work with a tutor for upper level courses. Perhaps, select seniors can provide occasional "tutoring and pizza" nights. As a part of student engagement and retention, it may be positive to able to incorporate a broader range of faculty expertise. Currently, two faculty teach the vast majority of EXSC courses….which may cause some students to lose interest and focus. Adding additional perspectives/pedagogical approaches thru other faculty at DSU (i.e. a professor who authored a book on social/ethical issues in sport or the strength and conditioning coach) or adjuncts may help provide some variety to degree. Lastly, students noted sometimes a challenge catch up if they do not do well in the Physiology of Exercise course. You could consider offering this course twice a year in even years, or as a "May term" (short and condensed).
5) *Maintain NSCA endorsed curriculum:*
   In alignment with the 2010 reviewers' comments, I recommend that DSU continue with maintaining an NSCA endorsed curriculum. This curriculum helps ensure that students gain the relevant knowledge, skills, and abilities.
6) *Engage Local/Regional Stakeholders and Graduates:*
   Engineering is applied math and science. Similarly, EXSC is a major that is an applied field of study. Grounded in physical and social sciences, the true value of this degree is the ability to bridge the science into practice. This practice is dynamic and moving over time…sometimes moving quickly. Staying connected to practice/industry and graduates of the program is key to the field. Consistent dialogue and meaningful conversations with everyday practioners with their "boots on ground" is important to success. Meeting regularly with stakeholders or advisory board (members who supervise interns, employ graduates, etc.) would help faculty gather feedback on student's strengths and areas in need of improvement. This is done on an every-other year basis with the program I teach. It is also valuable to gain insight into emerging trends in the various occupations in which students may seek employment.

Summary

The U.S**.** has ever increasing health care needs. The current and projected cost of this care is alarming. Exercise and physical activity plays a quintessential role in disease prevention and disease management. Conclusive evidence exists that physical inactivity is one important cause of most chronic diseases. "**Physical activity primarily prevents, or delays, chronic diseases, implying that chronic disease need not be an inevitable outcome during life**[3]". Moreover, the U.S. has seen unprecedented interest in improving sport performance at all levels. Physical strength, power and speed can be improved with training. Current and future of exercise science professionals will serve as catalysts for Americans across the age and physical fitness continuum for many years to come.

The EXSC students praised the faculty, stating they were very friendly, easy to approach and know what they are talking about. Some students chose the program based on the curriculum meeting physical therapy and occupational therapy professional degree requirements, or other allied health field requirements. The majority hoped to enter the workplace right after completing their degree. The curriculum is focused on assisting with preparing students for the CSCS exam. The classes and content were pertinent and for the most part, the professors really seemed to know the course material. The hands-on nature of the classes helped with retention of the subject matter. The small class sizes were mentioned numerous times as a strength of the program.

This 2018 Dakota State University Exercise Science external reviewer report is respectfully submitted by Dr. Jim White. Thank you for the opportunity to visit your beautiful campus and to spend a day with the dedicated faculty and delightful students at DSU.

Dr. Jim White — 5/17/18

Signature — Date

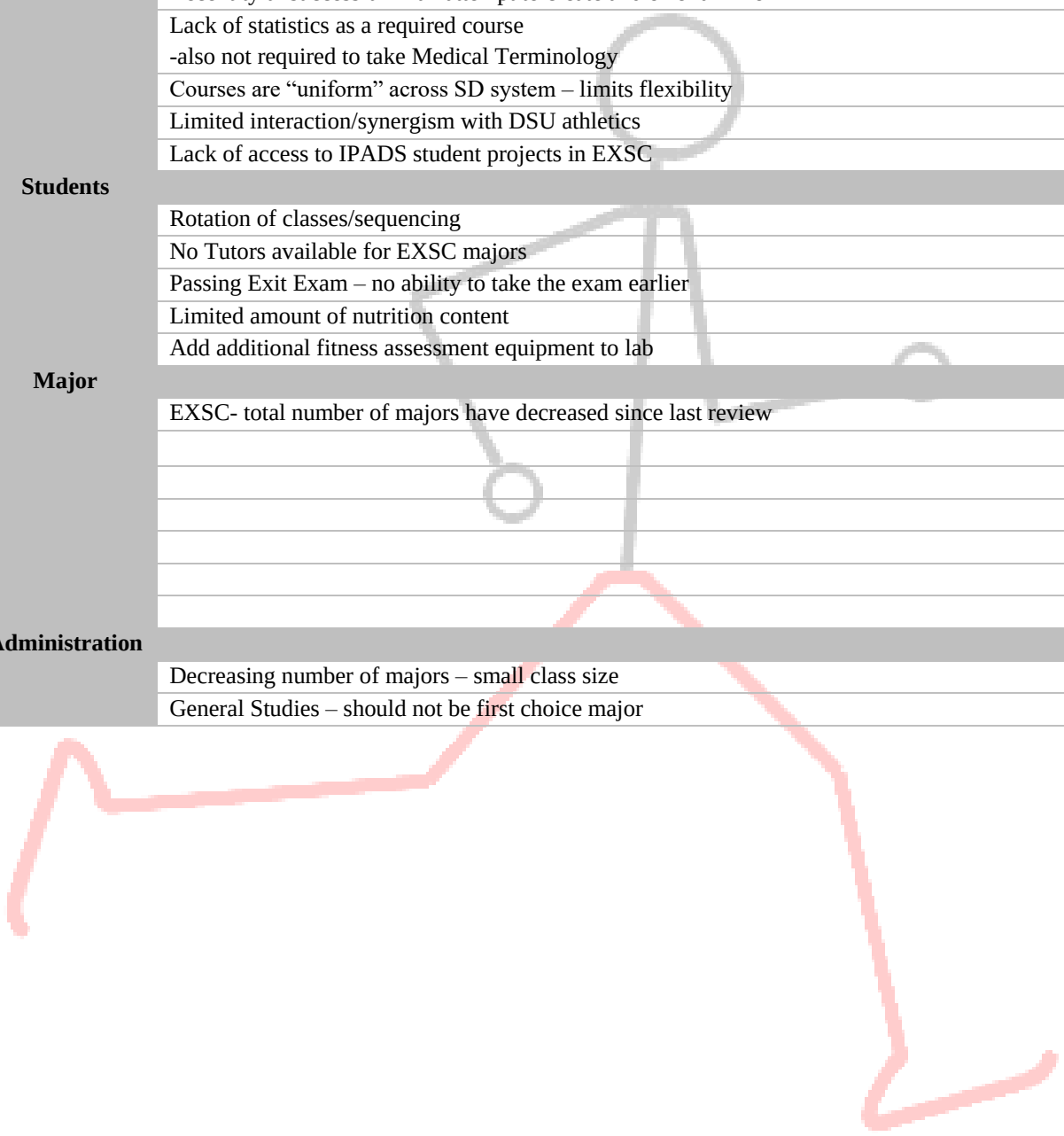
SCOT ANALYSIS

SWOT analysis can be traced in the field of business back to a Stanford commerce study conducted in the 1960s and 1970s. While the Strengths, Weaknesses, Opportunities and Threats of organization/program should be frequently considered…I have also seen the term Challenges in place of the term Weaknesses…Challenges tends to be a bit more positive. Here is my SCOT analysis of the Exercise Science program at Dakota State University.

	STRENGTHS
Faculty	
	Faculty meet one-on-one to advise Exercise Science majors
	Dedicated core faculty who are student centric and determined to see their students succeed
	Administration seem to support exercise science program
	Faculty stay up to date professionally by attending regional and national conferences
	Faculty have or are pursuing terminal degrees in appropriate fields
Students	
	Very goal oriented and dedicated; academic success is a priority to them
	Diverse career interests
	Students feel faculty are concerned with their success
	Small class size – affords one-on-one interaction with faculty
	Hands-on experiences
Major	
	NSCA endorsed curriculum
	EXSC-the number of majors (graduates- 2017) completing the degree has increased

SCOT ANALYSIS

	CHALLENGES
Faculty	
	Recentlty unsuccessful in an attempt to create and offer a minor
	Lack of statistics as a required course -also not required to take Medical Terminology
	Courses are "uniform" across SD system – limits flexibility
	Limited interaction/synergism with DSU athletics
	Lack of access to IPADS student projects in EXSC
Students	
	Rotation of classes/sequencing
	No Tutors available for EXSC majors
	Passing Exit Exam – no ability to take the exam earlier
	Limited amount of nutrition content
	Add additional fitness assessment equipment to lab
Major	
	EXSC- total number of majors have decreased since last review
Administration	
	Decreasing number of majors – small class size
	General Studies – should not be first choice major



SCOT ANALYSIS

	OPPORTUNITIES
Faculty	
	Support creation of a minor to compliment degree
	Grow variety of faculty teaching core EXSC courses
	Adding a facility space for athletics and EXSC faculty and students
	Adding courses taught by EXSC faculty to Liberal/General Education – helps draw in majors
Students	
	Grow EXSC club membership
	Create an on campus presence – to raise awareness of major
Major	
	EXSC- has growth potential and similar to programs at institutions the size of DSU could easily double in size; faculty need to push administration to add additional faculty if growth happens.
Administration	
	Support EXSC program needs
	Include exercise science program in design of new athletic facility
	Support use of select adjuncts
	Distance education has a great deal of growth potential; very little EXSC- lots of opportunity

SCOT ANALYSIS

	THREATS
Faculty	
	Decreasing enrolment trend
	Ability to offer a "plan B" route if students do not earn a C (or higher) in Physiology of Exercise course
	Lack of marketing of EXSC degree to future and current students; need to engage in student recruitment, especially student athletes and students pursuing General Studies degree
Students	
	Location can limit variety and availability of internships; need to establish additional regional & national contacts
	Students expressed concern that more faculty were needed in the major area because availability, frequency and rotation of classes were affected.
Major	
	Decreasing enrollment
Administration	
	Decreasing enrollment

References

(1) Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Exercise Physiologists, on the Internet at https://www.bls.gov/ooh/healthcare/exercise-physiologists.htm (visited *May 10, 2018*).

(2) American College of Sports Medicine University Connection Program http://www.acsm.org/find-continuing-education

(3) Frank W. Booth, Ph.D.,1 Christian K. Roberts, Ph.D.,2 and Matthew J. Laye, Ph.D.3 Lack of exercise is a major cause of chronic diseases Compr Physiol. 2012 Apr; 2(2): 1143–1211. Retrieved electronically https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4241367/