

**(NEW GRADUATE INITIATIVES)**

**PROPOSAL PROCEDURES CHECKLIST**

Academic units should adhere to the following procedures when requesting new curricular initiatives (degrees, concentrations or certificates).

- Obtain the required approval from the Office of the Provost to move the initiative forward for internal ASU governance reviews/approvals. Please see the academic strategic plan website at: <https://provost.asu.edu/curriculum-development>.**
- Submit any new courses that will be required for the new curricular program to the Curriculum ChangeMaker online course approval system for review and approval.**
  - Additional information can be found at the Provost's Office Curriculum Development website: [Courses link](#)
  - For questions regarding proposing new courses, send an email to: [courses@asu.edu](mailto:courses@asu.edu)
- Prepare the applicable proposal template and operational appendix for the proposed initiative.**
- Obtain letters or memos of support or collaboration (if applicable).**
  - when resources (faculty or courses) from another academic unit will be utilized
  - when other academic units or degree programs may be impacted by the proposed request
  - if the program will have an online campus option (support statement will be required from the Provost's office and ASU Online)
- Obtain the internal reviews/approvals of the academic unit.**
  - internal faculty governance review committee(s)
  - academic unit head (e.g. Department Chair or School Director)
  - academic unit Dean or their designee (will submit approved proposal to the [curriculumplanning@asu.edu](mailto:curriculumplanning@asu.edu) email account for further ASU internal governance reviews (as applicable, University Graduate Council, CAPC and Senate)

**Additional Recommendations**

All new graduate programs require specific processes and procedures to maintain a successful degree program. Below are items that Graduate College strongly recommends that academic units establish after the program is approved for implementation.

- Establish satisfactory academic progress policies, processes and guidelines** – Check within the proposing academic unit and/or college to see if there are existing academic progress policies and processes in place. If none have been established, please go to [http://graduate.asu.edu/faculty\\_staff/policies](http://graduate.asu.edu/faculty_staff/policies) and scroll down to the **academic progress review and remediation processes** (for faculty and staff) section to locate the reference tool and samples for establishing these procedures.
- Establish a Graduate Student Handbook for the new degree program** – Students need to know the specific requirements and milestones they must meet throughout their degree program. A Graduate Student Handbook, provided to students when they are admitted to the degree program and published on the website for the new degree, gives students this information. To be included in the handbook are the unit/college satisfactory academic progress policies, current degree program requirements (outlined in the approved proposal) and a link to the Graduate Policies and Procedures website: [http://graduate.asu.edu/faculty\\_staff/policies](http://graduate.asu.edu/faculty_staff/policies).

This template is to be used only by programs that have received specific written approval from the University Provost's Office to proceed with internal proposal development and review. A separate proposal must be submitted for each individual new degree program.

**DEGREE PROGRAM**

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**College/School:** College of Health Solutions

*Note: Program ownership is coded at the College/School level first and may not be a center, department or division apart from it.*

**Department/Division/School:** School of Nutrition and Health Promotion

**Proposing faculty group (if applicable):** Exercise Science and Health Promotion

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**Name of proposed degree program:** Master of Science (MS) in Biomechanics

**Proposed title of major:** Biomechanics

**Master's degree type:** MS - Master of Science

If Degree Type is "Other", provide degree type and proposed abbreviation: N/A

**Is a program fee required?** Yes, a program fee is required.

*Note: for more information about program fee requests, visit <https://provost.asu.edu/curriculum-development/changemaker/form-instructions#fees>*

Is the unit willing and able to implement the program if the fee is denied? Yes, we are able to implement the program.

**Requested effective term and year:** Fall 2017

(The first semester and year for which students may begin applying to the program)

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**PROPOSAL CONTACT**

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**Name:** Erin Feser **Title:** Lecturer

**Phone number:** 602-496-0236 **Email:** erinfeser@asu.edu

**DEAN APPROVAL(S)**

This proposal has been approved by all necessary unit and college/school levels of review, and the college/school(s) has the resources to offer this degree program. I recommend implementation of the proposed degree program.

*Note: An electronic signature, an email from the dean or dean's designee, or a PDF of the signed signature page is acceptable.*

**College/School/Division Dean name:** Julie Liss

**Signature:** 

**Date:** 11/7/16

**College/School/Division Dean name:**  
(if more than one college involved)

**Signature:**

**Date:**

This proposal template should be completed in full and submitted to the University Provost's Office [mail to: [curriculumplanning@asu.edu](mailto:curriculumplanning@asu.edu)]. It must undergo all internal university review and approval steps including those at the unit, college, and university levels. A program **may not** be implemented until the Provost's Office notifies the academic unit that the program may be offered.

## 1. PURPOSE AND NATURE OF PROGRAM

### A. Provide a brief program description

This graduate degree program is designed for advanced study of human movement through the implementation of mechanical principles. Specifically, the curriculum will heavily focus on the application of biomechanical concepts with regard to both clinical and research applications by transitioning the students to intensive hands-on, experiential learning during the second year of the program. The program will prepare students to continue to a doctoral program or seek employment in a clinical, research, or industry setting.

### B. Will concentrations be established under this degree program? Yes No

(Please provide additional concentration information in the curricular structure section – number 7.)

## 2. PROGRAM NEED

Explain why the university should offer this program (include data and discussion of the target audience and market).

### Program need: locally, regionally, and nationally

We conducted a review of the current MS degree offerings in the area of Kinesiology for the Universities in the state of Arizona, Universities along the west coast and southwest areas of the United States, ABOR Approved Peer University list, as well as Universities with well-known biomechanics programs to determine if any of these programs offer an MS degree in biomechanics.

Many of the Universities that were included in our search do offer an MS degree in Kinesiology (or Exercise Science, which is a term used synonymously with Kinesiology). However, these degree programs only allow for a broad study of the field of Kinesiology or concentrate in the area of exercise physiology. Only a small number of programs advertise the opportunity to pursue a "concentration" or an "emphasis" in the area of biomechanics. For example, within the southwestern states of Arizona, California, New Mexico, Colorado, Nevada and Utah, 41 Universities offer an MS degree in Kinesiology but only 2 (University of Northern Colorado and University of Nevada Las Vegas) offer a biomechanics concentration. However, of the 15 ABOR-Approved Peer University List 11 offer MS degrees in Kinesiology and 6 offer a specialization in biomechanics. (See Appendix B for full school listing.) The opportunity for students with the state of Arizona and neighboring states to complete a Master's degree in the area of biomechanics is limited. Offering a degree at ASU would fill a void within our state and region. It will also allow us to catch up to many of our Peer Universities, such as University of Illinois and Indiana University by providing such an educational opportunity for students. Furthermore, it has been determined through our extensive searching that, to our knowledge, students in the United States do not have the opportunity to earn a Master's degree in biomechanics exclusively. We believe that with the recent increased growth in the area of biomechanics our ability to offer a curriculum focused exclusively on biomechanics will set us ahead of our peers and will attract students not only from the southwest region but from across the country.

### Career opportunities for program graduates

Healthcare occupations and industries are expected to have the fastest employment growth and to add the most jobs between 2014 and 2024 (See Appendix F for additional details). Additionally, the field of biomechanics has experienced explosive growth in recent years and the need for a workforce with specific training in the area of biomechanics is also growing. Biomechanics related job roles largely fall within the social science research assistants, healthcare practitioners and technical workers, and clinical research coordinators categories listed on the Bureau of Labor Statistics website, all of which are projected to experience growth.

According to the American Kinesiology Association, most biomechanics careers, including working in movement assessment laboratories, design and research for sport and equipment companies, assessment and research with athletes, and working with human-machine interfaces, require either a MS or PhD degree. Evidence of the increased trend of opportunities in the field is supported by the consistent advertisement of research and industrial job opportunities through the premier job posting location for the field (Biomch-L), which is maintained by the International Society of Biomechanics. Advertised opportunities regularly seek prospective employees with Master's level training and experience in biomechanics. Examination of recently posted job opportunities within the field of biomechanics are diverse and include the academic setting, positions in industry (e.g. product research and design), clinical (e.g. hospitals and out-patient clinics), and other research enterprises (e.g. military research labs). (See "MS Biomechanics Job Postings" document for examples).

In accordance with the growth of job opportunities in the field of biomechanics, it is advantageous that we provide students with the opportunity to train specifically for these job opportunities at ASU. As a leader in innovation, ASU's ability to offer targeted, field-specific education and training will fill a notable void among Kinesiology programs at the Master's level. The Master's in biomechanics degree program has been specifically designed to meet the observed need of the growing field and incorporate the desires of employers within the curriculum itself. To broaden applicability of the degree, graduates of the program will obtain the specific knowledge and hands-on training of technical instrumentation to be prepared and competitive applicants for further graduate study, research technicians in industrial, clinical, or research settings, and clinical professional school. The proposed program will further benefit the College of Health Solutions and the University, by providing a direct path to doctoral studies in the Physical Activity, Nutrition and Wellness degree program (currently undergoing a major name change to Exercise and Nutritional Sciences). Indeed, establishment of this Master's program will promote retention and continued study for students at ASU, with a continuum of degrees at the undergraduate, Master's, and doctoral levels.

#### **Identified feeder programs and enrollment projections**

We believe there are several different avenues from which students will apply to the MS Biomechanics degree. A primary source of students is the ASU undergraduate Kinesiology program. The Kinesiology program provides a strong foundation for the pursuit of graduate level education in the field of biomechanics. Many of the current students in the Kinesiology program are interested in biomechanics, evidenced by the competitive nature of enrollment in the current course offerings and the classes which are consistently at maximum capacity. The current courses in the undergraduate curriculum provide focused training on mechanics and biomechanical principles which will provide the foundation for further implementation in the assessment of human movement and clinical applications provided by the Master's program. Additionally, it is likely that a portion of the ASU undergraduate Exercise and Wellness students will express an interest in the program. Therefore, within the School of Nutrition and Health Promotion alone there are over 1,500 potential students that can be targeted for recruitment for future cohorts of the MS Biomechanics degree program. To date, Kinesiology and Exercise and Wellness students have already begun inquiring about the potential program. Two example emails are located in Appendix C.

Another avenue for student recruitment is through regional schools that offer a bachelor's degree but do not have a Master's degree option. Within the states of Arizona, California, New Mexico, Colorado, Nevada, and Utah there are 83 Universities that offer a bachelor degree in the area of Kinesiology. However, only 41 of those schools offer a Master's degree. That leaves students from 42 Universities in the area searching for a new University when they choose to continue their education at the graduate level. Importantly, only 2 of those 41 schools offer a biomechanics concentration. (See Appendix B for individual school details.) Altogether, we anticipate that the limited ability to pursue a Master's degree specializing in biomechanics will render this program highly appealing to students in the region.

Additionally, we believe the program would be appealing for those students who wish to defer application to professional programs immediately upon graduation. Other groups of students include a small portion of the ASU Exercise and Wellness undergraduate program and students who do not get accepted to Physical Therapy school but wish to continue to seek a career in human movement.

Based on the recent growth in popularity in the Exercise and Wellness Master's degree, we expect enrollment numbers to be between 10-12 students per incoming class. This projection is further supported by the enrollment number breakdown shared with us by University of Northern Colorado, where approximately 25% of their Master's students are pursuing the biomechanics concentration, which is their second most popular concentration after the exercise physiology concentration. Furthermore, Ryan Marlin, Assistant Director of Academic Services for the College of Health Solutions, believes the current timing of this proposal will be beneficial for recruitment efforts. This is largely due to the fact that the American College of Sports Medicine conference will be held in Denver, Colorado next year. The proximity of the conference location will allow for direct interaction between our recruitment team and the large number of regional attendees, including students and faculty alike.

**Opportunities for program growth**

To enhance the appeal of the biomechanics focus area for the undergraduate Kinesiology degree program students, we have specifically designed the current Master's program to be compatible with a 4+1 program. We intend to submit a proposal for the 4+1 program following establishment of the Master's program.

**3. IMPACT ON OTHER PROGRAMS**

Attach any letters of collaboration or support from impacted programs (see checklist coversheet).

Marco Santello, the Director of the School of Biological and Health Systems Engineering, and Ann Sebren, the Exercise and Wellness Master's Degree Program Coordinator were contacted to determine any foreseeable impact on their respective degree programs. Letters of support/impact are included in Appendix D of this document.

**4. PROJECTED ENROLLMENT**

How many new students do you anticipate enrolling in this program each year for the next five years?

*Note: The Arizona Board of Regents (ABOR) requires that nine master's degrees be awarded every three years. Thus, the projected enrollment numbers must account for this ABOR requirement.*

| <b>5-YEAR PROJECTED ANNUAL ENROLLMENT</b>   |                            |                                                                 |                                                                     |                                                                        |                                                                           |
|---------------------------------------------|----------------------------|-----------------------------------------------------------------|---------------------------------------------------------------------|------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Please utilize the following tabular format | <b>1<sup>st</sup> Year</b> | <b>2<sup>nd</sup> Year</b><br>(Yr. 1 continuing + new entering) | <b>3<sup>rd</sup> Year</b><br>(Yr. 1 & 2 continuing + new entering) | <b>4<sup>th</sup> Year</b><br>(Yrs. 1, 2, 3 continuing + new entering) | <b>5<sup>th</sup> Year</b><br>(Yrs. 1, 2, 3, 4 continuing + new entering) |
| Number of Students Majoring (Headcount)     | 8                          | 20                                                              | 26                                                                  | 28                                                                     | 28                                                                        |

**5. ACCREDITATION OR LICENSING REQUIREMENTS (if applicable)**

Provide the names of the external agencies for accreditation, professional licensing, etc. that guide your curriculum for this program, if any. Describe any requirements for accreditation or licensing.

Not required, none available

**6. STUDENT LEARNING OUTCOMES AND ASSESMENT**

**A. List the knowledge, competencies and skills** students should have attained by graduation from the proposed degree program. (Examples of program Learning Outcomes can be found at <https://uoeee.asu.edu/>. Go to the Assessment accordion dropdown and select Assessment Plan to view sample outcomes.)

1. Graduates of the MS Biomechanics program will be able to conduct research in the field of biomechanics
2. Graduates of the MS Biomechanics program will be able to synthesize information from multiple sources to formulate a cohesive literature review on an assigned topic.

3. Graduates of the MS Biomechanics program will be prepared to assess movement disparities for an individual.
4. Graduates of the MS Biomechanics program will be able to apply advanced biomechanical conceptual knowledge in the classroom and in the field or laboratory.

**B. Describe the plans and methods to assess** whether students have achieved the knowledge, competencies and skills identified in the Learning Outcomes listed above. Please list measures and scales for each outcome. (You can find examples of assessment methods at <https://uoeee.asu.edu/>. Go to the Assessment accordion dropdown and select Assessment Plan to view sample measures.)

**Outcome 1:** Graduates of the MS Biomechanics program will be able to conduct research in the field of biomechanics

*Measure 1:* KIN 545 Movement Assessment and Evaluation

*Performance Criterion:* At least 80% of the MS Biomechanics students will earn an aggregate mean score of 75% or higher on the KIN 545 Lab Project 2 and Final Exam. (The combination of these two assessments allows for the assessment of hands-on and theoretical knowledge of equipment usage and research design)

*Measure 2:* KIN 552 Applied Research Methods in Biomechanics: Team Hypothesis Driven Research Study Project

*Performance Criterion:* At least 90% of the MS Biomechanics students will earn an aggregate mean score of 80% or higher on the KIN 552 Team Hypothesis Driven Research Study Project semesters I and II

**Outcome 2:** Graduates of the MS Biomechanics program will be able to synthesize information from multiple sources to formulate a cohesive literature review on an assigned topic.

*Measure 1:* KIN 552 Applied Research Methods in Biomechanics: Independent Literature Review

*Performance Criterion:* At least 90% of the MS Biomechanics students will earn an aggregate mean score of 80% or higher on the KIN 552 Independent Literature Review semesters I and II

*Measure 2:* Master's Thesis

*Performance Criterion:* At least 80% of master's theses will receive a rating of "Very Good" or "Outstanding" on a faculty developed rubric

**Outcome 3:** Graduates of the MS Biomechanics program will be prepared to assess movement disparities for an individual.

*Measure 1:* Alumni Survey – Administered one year post-graduation

*Performance Criterion:* At least 80% of the alumni survey respondents will report that the MS Biomechanics program contributed "Quite a bit" or "Very Much" to the development of their ability to assess movement disparities for an individual.

*Measure 2:* KIN 550 Clinical Applications in Biomechanics: Final Exam

*Performance Criterion:* At least 90% of the MS Biomechanics students will earn an aggregate mean score of 75% or higher on the KIN 550 Final Exam semesters I and II

**Outcome 4:** Graduates of the MS Biomechanics program will be able to apply advanced biomechanical conceptual knowledge in the classroom and in the field or laboratory.

*Measure 1:* KIN 540 Advanced Biomechanics of Human Motion

*Performance Criterion:* At least 80% of the MS Biomechanics students will earn a score of 75% or higher on the KIN 540 Final Exam

*Measure 2:* Alumni Survey – Administered one year post-graduation



*Performance Criterion:* At least 80% of the alumni survey respondents will report that the MS Biomechanics program contributed "Quite a bit" or "Very Much" to the development of their ability to apply advanced biomechanical conceptual knowledge.

**7. Curricular Structure**

**A. Curriculum Listing**

| <b>Required Core Courses for the Degree</b>                                                                                                                                  |                                       |                    |                     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|--------------------|---------------------|
| <b>Prefix and Number</b>                                                                                                                                                     | <b>Course Title</b>                   | <b>New Course?</b> | <b>Credit Hours</b> |
| EXW 501                                                                                                                                                                      | Research Statistics                   | No                 | 3                   |
| KIN 515                                                                                                                                                                      | Theory of Corrective Exercise         | Yes                | 3                   |
| KIN 512                                                                                                                                                                      | Biomechanics of the Skeletal System   | No                 | 3                   |
| KIN 540                                                                                                                                                                      | Advanced Biomechanics of Human Motion | Yes                | 3                   |
| KIN 545                                                                                                                                                                      | Movement Assessment and Evaluation    | Yes                | 3                   |
| <i>Section sub-total:</i>                                                                                                                                                    |                                       |                    | 15                  |
| <b>Research Course</b><br><i>(as deemed necessary by supervisory committee)</i>                                                                                              |                                       |                    |                     |
| <b>Prefix and Number</b>                                                                                                                                                     | <b>Course Title</b>                   | <b>New Course?</b> | <b>Credit Hours</b> |
| EXW 500                                                                                                                                                                      | Research Methods                      | No                 | 3                   |
| Other courses may be used with approval of the academic unit.                                                                                                                |                                       |                    |                     |
| <i>Section sub-total:</i>                                                                                                                                                    |                                       |                    | 3                   |
| <b>Culminating Experience(s)</b><br><i>E.g. – Capstone course, portfolio, written comprehensive exam, applied project, thesis (must be 6 credit hours with oral defense)</i> |                                       |                    | <b>Credit Hours</b> |
| KIN 599 Thesis                                                                                                                                                               |                                       |                    | 6                   |
| <i>Section sub-total:</i>                                                                                                                                                    |                                       |                    | 6                   |
| <b>Other Requirements</b><br><i>E.g. – internships, clinical requirements, field studies, foreign language exam as applicable</i>                                            |                                       |                    | <b>Credit Hours</b> |
| KIN 550 Clinical Applications in Biomechanics (two semesters required, 3+3 credits)                                                                                          |                                       |                    | 6                   |
| KIN 552 Applied Research Methods in Biomechanics (two semesters required, 3+3 credits)                                                                                       |                                       |                    | 6                   |
| KIN 591 Seminar (two semesters required, 1+1 credits)                                                                                                                        |                                       |                    | 2                   |
| <i>Section sub-total:</i>                                                                                                                                                    |                                       |                    | 14                  |
| <b>Total required credit hours</b>                                                                                                                                           |                                       |                    | <b>38</b>           |

1. List all required core courses and total credit hours for the core (required courses other than internships, thesis, dissertation, capstone course, etc.).
2. Omnibus numbered courses cannot be used as core courses.
3. Permanent numbers must be requested by submitting a course proposal to Curriculum ChangeMaker for approval. Courses that are new, but do not yet have a new number can be designated with the prefix, level of the course and X's (e.g. ENG 5XX or ENG 6XX).

**B. Will concentrations be established under this degree program?**  Yes  No

**8. COURSES**

**A. Course Prefix(es):** Provide the following information for the proposed graduate program.

- i. Will a new course prefix(es) be required for this degree program?  
Yes  No
- ii. If yes, complete the [Course Prefixes / Subjects Form](#) for each new prefix and submit it as part of this proposal submission.

**B. New Courses Required for Proposed Degree Program:** Provide course prefix, number, title, credit hours and description for any new courses required for this degree program.

**KIN 545 Movement Assessment and Evaluation, 3 credits**

This course will serve as the laboratory techniques course specific to biomechanics equipment and evaluations.

**KIN 540 Advanced Biomechanics of Human Motion, 3 credits**

This course will build upon pre-requisite biomechanics courses at the undergraduate and entry graduate level to prepare and expose students to advanced concepts in the field of biomechanics.

**KIN 515 Theory of Corrective Exercise, 3 credits**

The purpose of this course is to introduce students to the philosophic approach of assessing whole body movement. It is expected this course will expand the students' understanding the basic movement patterns needed to reduce injury and how the body compensates for movement impairments. Students will gain practice screening movement to identify imbalances and dysfunction and learn how to apply corrective exercise techniques.

**KIN 550 Clinical Applications in Biomechanics, 3 credits (repeatable for up to 6 credits)**

The purpose of this course is for the student to gain hands on experience utilizing clinical techniques and equipment to analyze human movement for biomechanical applications. This will occur by utilizing the student biomechanics laboratory as a simulated clinic environment where volunteers may participate as clients for students to gain experience as clinicians.

**KIN 552 Applied Research Methods in Biomechanics, 3 credits (repeatable for up to 6 credits)**

The purpose of this course is for the student to develop their research skills and gain further experience working in a biomechanics research environment. A variety of projects will be assigned to facilitate the student's skill development for biomechanics research, such as gait analysis and computational modeling.

**9. FACULTY, STAFF, AND RESOURCE REQUIREMENTS**

**A. Faculty**

i. **Current Faculty** – Complete the table below for all current faculty members who will teach in the program.

| Name        | Rank                | Highest Degree | Area of Specialization/ Expertise | Estimated Level of Involvement                                                                                                                                                                                                                                                                                                                                     |
|-------------|---------------------|----------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Erin Feser  | Lecturer            | MS             | Biomechanics                      | This faculty member teaches the Theory of Corrective Exercise course and will serve as the point of contact for students interested in exercise and sport biomechanics-related careers due to her extensive coaching and applied biomechanics experience. She will also serve as the Program Coordinator and will lead the faculty regarding pedagogical decisions |
| Meghan Vidt | Assistant Professor | PhD            | Biomechanics                      | This faculty member teaches the Biomechanics of the Skeletal System course and will serve as lead for the Advanced Biomechanics course. Additionally, it is expected that she will rotate teaching the second year                                                                                                                                                 |



|                    |                     |     |                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|--------------------|---------------------|-----|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    |                     |     |                                | coursework with the other PhD biomechanics faculty (Dr. Peterson and new hires). She will serve as a thesis advisor and provide further opportunities for students to work in her research lab. Dr. Vidt's training in musculoskeletal modeling will serve as a vital resource for the curriculum development and training of the MS students                                                                                                                                                                                                                                                                                               |
| Dan Peterson       | Assistant Professor | PhD | Motor control and biomechanics | This faculty member is well-suited to teach the Movement Assessment and Evaluation course, which serves as the laboratory techniques course for the program. His previous research work and biomechanics training complements the other faculty's areas of expertise by contributing experience and knowledge of balance assessment and work with special populations. Additionally, it is expected that he will rotate teaching the second year coursework with the other PhD biomechanics faculty (Dr. Vidt and new hires). He will serve as a thesis advisor and provide further opportunities for students to work in his research lab. |
| Shannon Ringenbach | Associate Professor | PhD | Motor development              | This faculty member teaches courses that will be of interest to students as elective coursework in the closely related field of Motor Behavior. Additionally, students will have the opportunity to apply to work with the faculty member within her research lab. Dr. Ringenbach will be available to serve as a committee member on student theses.                                                                                                                                                                                                                                                                                       |
| Natalia Dounskaia  | Associate Professor | PhD | Motor control                  | This faculty member teaches courses that will be of interest to students as elective coursework in the closely related field of Motor Behavior. Additionally, students will have the opportunity to apply to work with the faculty member within her research lab. Dr. Dounskaia will be available to serve as a committee member on student theses.                                                                                                                                                                                                                                                                                        |

- ii. **New Faculty** - Describe the new faculty hiring needed during the next three years to sustain the program. List the anticipated hiring schedule and financial sources for supporting the addition of these faculty members.

At least one, preferably two new tenure-track faculty are needed for this program. The new hires are necessary to maintain current course offerings within the undergraduate Kinesiology program and to meet the expanded needs and anticipated demand for the MS program. The faculty will have a research focus in the area of biomechanics, human movement science, or a related area. Their roles within the program will

include teaching classes, leading laboratory sessions, mentoring students, and serving on student thesis committees.

This new faculty hire was on the college's hiring plan for this year but knowing the position is not really needed until fall 2018 it was not positioned as high priority and therefore did not receive approval to hire. It has been placed on this year's hiring plan with high priority. Upon approval, a search will commence during fall 2017 for a start of fall 2018.

It is important to note that the program is sustainable with the addition of one faculty member. This addition is not needed until year two of the program (fall 2018). In the event a new hire is not put into place, we have other options to ensure the deliverability of the program. For example, we have current faculty whose teaching assignments could be focused more on the graduate courses. Additionally, we have confirmation from qualified community partners of interest in providing student mentorship and could serve as adjunct faculty for the program. These community partners would bring years of excellent research and industry experience to the classroom.

**iii. Administration of the program** - Explain how the program will be administered for the purposes of admissions, advising, course offerings, etc. Discuss the available staff support.

**Program Administration and Staff Support:**

Erin Feser will serve as Program Coordinator to facilitate course-offering decisions, student advising, and organize applicants for admissions review. Non-tenure eligible faculty regularly and successfully serve as Program Coordinators in the School of Nutrition and Health Promotion. Program Coordinators work closely with the Associate Director and Director of the school and meet as a group monthly with the Director of the School.

The Exercise Science and Health Promotion staff member dedicated to serving the MS Exercise and Wellness and the MS Clinical Exercise Physiology degree programs will also serve the MS Biomechanics degree program.

**Program Admissions:**

A committee of program faculty (a minimum of 3 individuals) will assemble to review admission applications and make admission decisions.

**Student Advising:**

At the onset of the students' first semester, students should work with the Program Coordinator to identify appropriate faculty members to serve on the following committees, which are listed in the order in which they should be formed. It is likely that the members of these committees will have considerable overlap.

*Advising Committee*

The purpose of the Advising Committee is to advise the student regarding coursework, program requirements and potential research topics from the onset of the student's enrollment in the program. Each accepted student will be assigned a committee shortly after their arrival on campus. The committee will consist of the Program Coordinator and one additional faculty member from the Biomechanics Program. Meeting 1: The committee will meet with the student at least once prior to the start of the first semester enrolled in the program. (Students with no previously noted deficiencies may meet with their committee shortly after the start of the first semester enrolled.) During this meeting, the committee will review the student's academic record, identify and point out any gaps in the student's preparation or potential difficulties with program requirements, and together plan with the student his/her first semester's work. Meeting 2: The committee shall meet a second time with the student prior to the onset of the second semester enrolled to discuss student program progress, grades, and year two work (including thesis preparation, future course enrollment, and any extracurricular activities). This meeting may take place with only one faculty member present with an outline of meeting items discussed returned to the Program Coordinator for review.

*Thesis Committee*

The Thesis Committee (termed the Supervisory Committee on the Graduate College website) serves to guide the student in developing the MS thesis proposal, completing data collection and analysis, and writing up the final results. Each student should form their Thesis Committee no later than the end of the second semester enrolled in the program and must be established before the student can register for KIN 599 Thesis. The Thesis Committee will consist of a minimum of three faculty members. The Thesis Chair must be a tenured/tenure-track faculty member associated with the Biomechanics Program. The Program may approve non-tenure eligible faculty with appropriate academic credentials to serve as a Co-Chair when appropriate with Graduate College approval.

**B. Resource requirements needed to launch and sustain the program:** Describe any new resources required for this program's success such as new staff, new facilities, new library resources, new technology resources, etc.

Facilities: It is expected that the current teaching laboratory space within the Exercise Science and Health Promotion program will be sufficient to fulfil the program needs.

New technology resources: The Kinesiology program currently has the minimum resources needed to launch the MS in Biomechanics program. These current resources include the small teaching lab space in Health North Room 440/450, an 8-channel Noraxon surface electromyography system, one computer workstation, 2 video cameras to use for motion analysis, 2 "low tech" force plates, and a Biodex dynamometer.

A fundamental component and unique feature of the MS in Biomechanics is to provide intensive, hands-on experience with gold-standard equipment and resources that are used in biomechanical assessment facilities in both academic and clinical settings. To appropriately prepare students for future employment as research associates or continued education in doctoral programs, the resources of the program should be enhanced beyond their current capabilities. The program and course fees have been specifically designed to supplement the investment in these necessary pieces of equipment, as well as provide a continued revenue stream to offset software upgrades, maintenance, and laboratory disposables (e.g. adhesive tape, surface electromyography electrodes). It is planned that the laboratory will be capable of performing a full gait analysis, as well as other clinically-important assessments, such as postural stability evaluations. Resources needed to develop the laboratory space into a full-service gait laboratory are listed below. Upon receipt of notification of degree program approval, the faculty will work to develop relationships with outside agencies in order to develop funding sponsorships or organize yearly rental agreements to lower the initial cost of equipment acquisitions. Confirmation of Motion Analysis Corporation's willingness to provide flexible payment options for equipment is included in Appendix E. In the event the proposed program fee is not approved the school has confirmed that it will be able to allocate funding to the program from a variety of potential sources (e.g., current foundation funds that can be allocated to educational purposes).

Item(s), Manufacturer, Cost

- 8 camera motion capture system, Motion Analysis Corporation, \$65,000
- 2 force plates, AMTI, \$28,000
- 1 additional workstation (to run equipment), Dell, \$2,200

This list has been reviewed by the Director of the School of Nutrition and Health Promotion and has received approval.

Other: Additional staff or library resources are not needed for the MS in Biomechanics degree.

**APPENDIX A  
OPERATIONAL INFORMATION FOR GRADUATE PROGRAMS**

(This information is used to populate the [Graduate Programs Search](#)/catalog website.)

1. **Proposed title of major:** Biomechanics
2. **Provide a brief program description** (catalog type (i.e. will appear in Degree Search) – no more than 150 words):

The MS in biomechanics degree program is designed for advanced study of human movement through the implementation of mechanical principles. Specifically, the curriculum focuses heavily on the application of biomechanical concepts with regard to both clinical and research applications by transitioning the students to intensive hands-on, experiential learning. The program prepares students to continue to a doctoral program or seek employment in a clinical, research, or industry setting.

3. **Campus(es) where program will be offered:**

*ASU Online curriculum consists of courses that have no face-to-face content. iCourses are online courses for students in on-campus programs. iCourses may be included in a program, but may not comprise the entirety of a program. On-campus programs must have some face-to-face content.*

*Note: Office of the Provost approval is needed for ASU Online campus options.*

ASU Online only (all courses online and managed by ASU Online)

**All other campus or location options (please select all that apply):**

Downtown Phoenix  Polytechnic  Tempe  West  Other: \_\_\_\_\_

**Both on-campus and**  ASU Online\* - (check applicable campus(es) from options listed above)

*\*Note: Once students elect a campus option, students will not be able to move back and forth between the on-campus (in-person) options and the ASU Online campus option.*

4. **Admission Requirements:**

An applicant must fulfill the requirements of both the Graduate College and the College of Health Solutions.

Applicants are eligible to apply to the program if they have earned a bachelor's or master's degree in kinesiology, exercise science, human movement science, biomedical engineering, or closely related field, from a regionally accredited institution.

Applicants must have a minimum of a 3.00 cumulative GPA (scale is 4.00 = "A") in the last 60 hours of a student's first bachelor's degree program, or applicants must have a minimum of a 3.00 cumulative GPA (scale is 4.00 = "A") in an applicable master's degree program.

Applicants are required to submit:

1. graduate admission application and application fee
2. official transcripts
3. GRE scores
4. professional resume
5. letter of intent/written statement
6. three letters of recommendation
7. proof of English proficiency

**Additional Application Information**

Applicants whose native language is not English (regardless of current residency) must provide proof of English proficiency.

Students who do not have undergraduate coursework listed below or equivalent (with a grade of C or higher) must complete deficiency coursework. This is required for the MS Biomechanics degree program and must be completed the prior to beginning the application process or prior to beginning graduate coursework as part of this

master's program. Students may be admitted to the program with deficiencies. Undergraduate deficiency courses include:

- Human Anatomy and Physiology I, II (with laboratories)
- Physics I
- Statistics
- Calculus I
- Biomechanics
- Functional Anatomy

**5. Application Review Terms (if applicable session):**

Indicate the first term and year in which applications will be opened for admission. Applications will be accepted on a rolling basis after that time.

*Note: It is the academic unit's responsibility to display program deadline dates on their website.*

| <b>Terms</b>                                       | <b>Years</b> | <b>University Late Fee Deadline</b> |
|----------------------------------------------------|--------------|-------------------------------------|
| <input checked="" type="checkbox"/> Fall (regular) | (year): 2017 | July 1st                            |

*Note: Session B is only available for approved online programs.*

**Program admission deadlines website address:** <https://chs.asu.edu/programs/graduate> (to be updated upon approval of program)

**6. Curricular Requirements:**

**Curricular Structure Breakdown for the Academic Catalog:**

*(To be completed by Graduate College)*

**Required Core (15 credit hours)**

- EXW 501 Research Statistics (3)
- KIN 515 Theory of Corrective Exercise (3)
- KIN 512 Biomechanics of the Skeletal System (3)
- KIN 540 Advanced Biomechanics of Human Motion (3)
- KIN 545 Movement Assessment and Evaluation (3)

**Research (3 credit hours)**

- EXW 500 Research Methods (3)

**Other Requirement (14 credit hours)**

- KIN 550 Clinical Applications in Biomechanics (6)
- KIN 552 Applied Research Methods in Biomechanics (6)
- KIN 591 Seminar (2)

**Culminating Experience (6 credit hours)**

- KIN 599 Thesis (6)

**Additional Curriculum Information**

For the research requirement, other courses may be used with approval of the academic unit.

KIN 550 and KIN 552 are three credit hour courses. Students will take each twice for a total of six credit hours.

KIN 591 is a one credit hour courses. Students take this course twice for a total of two credit hours.

7. **Comprehensive Exams:**

Master's Comprehensive Exam (when applicable), please select from the appropriate option.

N/A

8. **Allow 400-level courses:**     Yes     No

*Note: No more than 6 credit hours of 400-level coursework may be included on a graduate student plan of study.*

9. **Committee:**

Required number of thesis committee members (must be a minimum of two): 3

10. **Keywords:** List all keywords that could be used to search for this program. Keywords should be specific to the proposed program – limit 10 keywords.

biomechanics, kinesiology, human movement, exercise science

11. **Area(s) of Interest**

A. Select **one (1)** primary area of interest from the list below that applies to this program.

- |                                                                           |                                                                         |
|---------------------------------------------------------------------------|-------------------------------------------------------------------------|
| <input type="checkbox"/> <a href="#">Architecture &amp; Construction</a>  | <input type="checkbox"/> <a href="#">Interdisciplinary Studies</a>      |
| <input type="checkbox"/> <a href="#">Arts</a>                             | <input type="checkbox"/> <a href="#">Law &amp; Justice</a>              |
| <input type="checkbox"/> <a href="#">Business</a>                         | <input type="checkbox"/> <a href="#">Mathematics</a>                    |
| <input type="checkbox"/> <a href="#">Communication &amp; Media</a>        | <input type="checkbox"/> <a href="#">Psychology</a>                     |
| <input type="checkbox"/> <a href="#">Education &amp; Teaching</a>         | <input type="checkbox"/> <a href="#">STEM</a>                           |
| <input type="checkbox"/> <a href="#">Engineering &amp; Technology</a>     | <input type="checkbox"/> <a href="#">Science</a>                        |
| <input type="checkbox"/> <a href="#">Entrepreneurship</a>                 | <input type="checkbox"/> <a href="#">Social and Behavioral Sciences</a> |
| <input checked="" type="checkbox"/> <a href="#">Health &amp; Wellness</a> | <input type="checkbox"/> <a href="#">Sustainability</a>                 |
| <input type="checkbox"/> <a href="#">Humanities</a>                       |                                                                         |

B. Select **one (1)** secondary area of interest from the list below that applies to this program.

- |                                                                          |                                                                         |
|--------------------------------------------------------------------------|-------------------------------------------------------------------------|
| <input type="checkbox"/> <a href="#">Architecture &amp; Construction</a> | <input type="checkbox"/> <a href="#">Interdisciplinary Studies</a>      |
| <input type="checkbox"/> <a href="#">Arts</a>                            | <input type="checkbox"/> <a href="#">Law &amp; Justice</a>              |
| <input type="checkbox"/> <a href="#">Business</a>                        | <input type="checkbox"/> <a href="#">Mathematics</a>                    |
| <input type="checkbox"/> <a href="#">Communications &amp; Media</a>      | <input type="checkbox"/> <a href="#">Psychology</a>                     |
| <input type="checkbox"/> <a href="#">Education &amp; Teaching</a>        | <input type="checkbox"/> <a href="#">STEM</a>                           |
| <input type="checkbox"/> <a href="#">Engineering &amp; Technology</a>    | <input checked="" type="checkbox"/> <a href="#">Science</a>             |
| <input type="checkbox"/> <a href="#">Entrepreneurship</a>                | <input type="checkbox"/> <a href="#">Social and Behavioral Sciences</a> |
| <input type="checkbox"/> <a href="#">Health &amp; Wellness</a>           | <input type="checkbox"/> <a href="#">Sustainability</a>                 |
| <input type="checkbox"/> <a href="#">Humanities</a>                      |                                                                         |



**12. Contact and Support Information:**

|                                                                                                        |                                       |
|--------------------------------------------------------------------------------------------------------|---------------------------------------|
| Office Location<br>(Building Code & Room):                                                             | Health North 401 E                    |
| Campus Telephone Number:<br>(may not be an individual's number)                                        | 602-496-3300                          |
| Program Email Address:<br>(may not be an individual's email)                                           | chs@asu.edu                           |
| Program Website Address:<br>(if one is not yet created, use unit website until one can be established) | https://chs.asu.edu/programs/graduate |
| Program Director (Name):                                                                               | Erin Feser                            |
| Program Director (ASURITE):                                                                            | enharper                              |
| Program Support Staff<br>(Name):                                                                       | Chuck Hale                            |
| Program Support Staff<br>(ASURITE):                                                                    | cahale1                               |
| Admissions Contact (Name):                                                                             | Chuck Hale                            |
| Admissions Contact<br>(ASURITE):                                                                       | cahale1                               |

**13. Application and iPOS Recommendations:** List the Faculty and Staff who will input admission/POS recommendations to Gportal **and** indicate their approval for Admissions and/or POS:

| NAME       | ASURITE  | ADMSN | POS |
|------------|----------|-------|-----|
| Chuck Hale | cahale1  | X     | X   |
| Erin Feser | enharper | X     | X   |

APPENDIX B

**Regional Schools Comparison List**

The following table lists the number of bachelor and master degree programs in the area of kinesiology by state. These numbers were identified by using the American Kinesiology Association Kinesiology Institution Database. The Master degree program list was then cross referenced with the American Society of Biomechanics (ASB) graduate programs list. Schools that appeared on the ASB list were individually searched to identify if the curriculum offered a biomechanics emphasis (“specialization” or “concentration”). *Note: no school was identified to offer a master’s degree in biomechanics.*

| State      | Bachelor Degree Programs | Master Degree Programs | Master with Biomechanics emphasis |                                                                                                           |
|------------|--------------------------|------------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------|
| Arizona    | 3                        | 2                      | 0                                 |                                                                                                           |
| California | 56                       | 28                     | 0                                 |                                                                                                           |
| New Mexico | 6                        | 1                      | 0                                 |                                                                                                           |
| Colorado   | 10                       | 6                      | 1                                 | University of Northern Colorado – MS, Sport and Exercise Science, Biomechanics concentration (15 credits) |
| Nevada     | 1                        | 1                      | 1                                 | University of Nevada Las Vegas – MS, Kinesiology, Biomechanics concentration                              |
| Utah       | 7                        | 3                      | 0                                 |                                                                                                           |

**ABOR- Approved University Peer List**

The following table includes the ABOR-Approved University Peer List for Arizona State University. This list was approved by the ABOR Strategic Planning, Budget and Finance Committee February 19, 2009.

The Universities that have a MS degree in the area of Kinesiology are indicated with an X in the corresponding column. The Universities that offer a curriculum with a biomechanics emphasis (“specialization” or “concentration”) are listed in the last column. *Note: no school was identified to offer a master’s degree in biomechanics.*

| University                                | Offers an MS Kinesiology Degree (x = yes) | Offers a specialization or concentration in Biomechanics         |
|-------------------------------------------|-------------------------------------------|------------------------------------------------------------------|
| University of California Los Angeles      |                                           |                                                                  |
| University of Connecticut                 | X                                         |                                                                  |
| Florida State University                  | X                                         |                                                                  |
| University of Illinois (Urbana-Champaign) | X                                         | MS, Kinesiology<br>-Motor Control and Biomechanics Concentration |
| Indiana University                        | X                                         | MS, Kinesiology<br>-Biomechanics emphasis                        |

|                                       |   |                                                                                                                                                                      |
|---------------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| University of Iowa                    |   |                                                                                                                                                                      |
| University of Maryland (College Park) |   |                                                                                                                                                                      |
| Michigan State University             | X |                                                                                                                                                                      |
| University of Minnesota (Twin Cities) | X | MS, Kinesiology<br>-Biomechanics and Neuromotor control emphasis                                                                                                     |
| Ohio State University                 | X |                                                                                                                                                                      |
| Pennsylvania State University         | X | MS, Kinesiology<br>-Biomechanics is an 'area of study'. 6 credits in biomechanics courses – Does not directly enroll MS students, PhD students get degree in passing |
| Rutgers University                    | X |                                                                                                                                                                      |
| The University of Texas – Austin      | X | MS, Kinesiology - Option to specialize in Movement Science which has an area of biomechanics                                                                         |
| University of Washington (Seattle)    |   |                                                                                                                                                                      |
| University of Wisconsin (Madison)     | X | MS, Kinesiology<br>-Biomechanics specialization                                                                                                                      |

## APPENDIX C

Student interest sample emails:



Erin Feser <enharper@asu.edu>

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**Masters of Biomechanics Status**

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Lindsay [REDACTED] <[REDACTED]@asu.edu>  
To: Erin Feser <erinfeser@asu.edu>

Thu, Jul 28, 2016 at 8:22 AM

Hey Erin,

I hope your summer break is going well!

I was wondering if you have heard back about the Masters of Biomechanics program that you mentioned to us in Biomechanics during the spring? Being that I'll graduate this Fall semester, I have been researching Masters programs for both Biomechanics and Prosthetics across the United States, and I'd love to hear about the status of the program you put together! (I'd love to be able to stay in-state, too!)

Thank you!

Lindsay [REDACTED]



Erin Feser <enharper@asu.edu>

---

**Biomechanics Masters**

---

Ryan [REDACTED] <[REDACTED]@gmail.com>  
To: erinfeser@asu.edu

Sun, Mar 27, 2016 at 11:37 AM

Hi Erin,

I have been talking to Mrs. Broman about the Master's Program that is underway. I heard its all set up and just waiting to get approved and should start in Fall of 2017. Congratulations on finally getting it done! Like we have talked before I am rather excited about the program, and can't wait for it to be approved. I do have a couple questions for you if you don't mind. I will have a background in Exercise Science from ASU, Is there going to be any prerequisites that must be met in order to get in to the program? If so, is it possible to go in with a deficiency and finish it while in the program? I do also know that most grad schools prefer the students to take the GRE, will I have to take it in order to apply as well.

Last time we talked as well I was under the impression that you wanted to make the program based of of gait analysis platform, is that still the idea? My last question to you Is, once I graduate here in may with Exercise Science I would like to find a job where I can gain experience in biomechanics. Do you know of any entry level jobs out there that I could apply for or watch out for with this particular major? From what I have found a lot of them are asking for Master's degrees.

I do also understand you are very busy, so please feel free to respond accordingly, we do after all have a year to wait.

Excited,

Ryan [REDACTED]

**APPENDIX D**

Support Letters

Official Submission  
College of Health Solutions

**From:** Kate Lehman  
**Sent:** Thursday, January 26, 2017 10:43 AM  
**To:** Curriculum Planning  
**Cc:** Erin Feser  
**Subject:** FW: Proposals for new MS degrees approved

Hello:

Attached is our proposal for the MS in Biomechanics that was just approved for planning on the academic plan.

**Kate Lehman**  
Senior Director, Academic Initiatives



550 North 3rd Street, Ste. 511 | Phoenix, AZ 85004-9020  
Work: 602.496.0241 | Fax: 602.496.0544 | [Kate.Lehman@asu.edu](mailto:Kate.Lehman@asu.edu)  
<https://chs.asu.edu>

School of Nutrition and Health Promotion – Faculty Support



Erin Feser &lt;enharper@asu.edu&gt;

---

**MS Program Proposal Letter of Support**

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Ann Sebren <Ann.Sebren@asu.edu>  
To: Erin Feser <erinfeser@asu.edu>

Mon, Feb 22, 2016 at 10:53 AM

The Master of Science in Biomechanics would be a strong and complimentary addition to the current MS degree choices in the Exercise Science and Health Promotion programs within the School of Nutrition and Health Promotion. Several of the proposed courses in the MS in Biomechanics degree would benefit Master of Science in Exercise and Wellness students with interests in the areas of strength and conditioning and physical therapy. The proposed MS in Biomechanics degree does not overlap the MS in EXW degree as it is substantively different in content focus and career pathways.

I support the development of the Master of Science in Biomechanics within the Exercise Science and Health Promotion Program.

Ann Sebren, EdD  
Principal Lecturer  
Coordinator, Master of Science in Exercise and Wellness  
Honors Faculty  
Exercise Science and Health Promotion Program  
School of Nutrition and Health Promotion  
Arizona State University  
500 N. 3rd St. MC 3020  
Phoenix, AZ 85004  
602-496-1851



School of Biological and Health Systems Engineering - Support



Erin Feser <enharper@asu.edu>

**MS Program Proposal Letter of Support**

2 messages

Erin Feser <erinfeser@asu.edu>

Thu, Jan 28, 2016 at 2:26 PM

To: Marco Santello <marco.santello@asu.edu>

Good afternoon -


I am writing to request support from your unit regarding a new Master's level graduate program to be proposed by the Exercise Science and Health Promotion Program, School of Nutrition and Health Promotion. Additionally, I am asking for confirmation that this degree program does not appear to be something that would impact your graduate degree program. Below is a summary of the proposed degree program and attached is the current draft of the plan of study.

The Master of Science in Biomechanics is designed for advanced study of human movement through the methods of mechanics. The curriculum will heavily focus on the application of biomechanical concepts to clinical and research situations by transitioning the students to intensive hands on experiential learning during the second year of the program (e.g., gait and balance assessment). The program will prepare students to continue to a doctoral program or industry, clinical, and research job roles in biomechanics.

Please let me know if you have any questions or need any additional information.

Thank you,

**Erin (Harper) Feser, MS**  
Lecturer, Exercise Science and Health Promotion  
Honors Faculty, Barrett The Honors College  
Arizona State University  
School of Nutrition & Health Promotion  
College of Health Solutions  
NH-2 401E | 550 N. 3rd St. | Phoenix, AZ 85004  
602.496-0236 | erinfeser@asu.edu

 **MS Biomechanics course list 2.docx**  
12K

Marco Santello <Marco.Santello@asu.edu>

Fri, Jan 29, 2016 at 9:23 AM

To: Erin Feser <erinfeser@asu.edu>

Dear Erin,






I have no concerns about your MS program proposal and SBHSE is supportive of this.


Best,

Marco

Marco Santello, PhD  
Director, School of Biological and Health Systems Engineering  
Harrington Endowed Chair and Professor, Barrett Honors Faculty  
501 East Tyler Mall, ECG Building, Suite 334C  
Ira A. Fulton Schools of Engineering, Arizona State University  
Tempe, AZ 85287-9709  
ph.: (480) 965-8279; fax: (480) 727-7624  
email: marco.santello@asu.edu

School of Life Sciences – Impact Statement

 **Erin Feser** <erinfeser@asu.edu>  Feb 3 (6 days ago)   

to Bertram 

Good morning -





I am writing to request support from the School of Life Sciences regarding a new Master's level graduate program that has been proposed by the Exercise Science and Health Promotion Program, School of Nutrition and Health Promotion. Additionally, I am asking for confirmation that this degree program does not appear to be something that would impact your graduate degree programs. Below is a summary of the proposed degree program and attached is the current draft of the plan of study.


The Master of Science in Biomechanics is designed for advanced study of human movement through the methods of mechanics. The curriculum will heavily focus on the application of biomechanical concepts to clinical and research situations by transitioning the students to intensive hands on experiential learning during the second year of the program (e.g., gait and balance assessment). The program will prepare students to continue to a doctoral program or industry, clinical, and research job roles in biomechanics.

Please let me know if you have any questions or need any additional information.

Thank you,

**Erin Feser, MS**  
Lecturer  
Exercise Science and Health Promotion  
Honors Faculty, Barrett The Honors College  
**Arizona State University**  
**School of Nutrition & Health Promotion**  
**College of Health Solutions**  
Health North 401E  
550 N. 3rd St. | Phoenix, AZ 85004  
[602.496-0236](tel:602.496-0236) | [erinfeser@asu.edu](mailto:erinfeser@asu.edu)

 **Bertram Jacobs** 3:32 PM (21 hours ago)   

to Christine, Erin 

Dear Erin,

I have reviewed the proposed MS degree in biomechanics and do not feel it overlaps with degrees offered in the School of Life Sciences. I am therefore supportive of your degree.

My best.

**Bert Jacobs, Professor and Director**  
School of Life Sciences

College of Nursing and Health Innovation – Impact Statement

Erin Feser <erinfeser@asu.edu> Feb 3 (8 days ago)

to teri.pipe

Good morning -

I am writing to request support from your unit regarding a new Master's level graduate program to be proposed by the Exercise Science and Health Promotion Program, School of Nutrition and Health Promotion. Additionally, I am asking for confirmation that this degree program does not appear to be something that would impact your graduate degree program. Below is a summary of the proposed degree program and attached is the current draft of the plan of study.

The Master of Science in Biomechanics is designed for advanced study of human movement through the methods of mechanics. The curriculum will heavily focus on the application of biomechanical concepts to clinical and research situations by transitioning the students to intensive hands on experiential learning during the second year of the program (e.g., gait and balance assessment). The program will prepare students to continue to a doctoral program or industry, clinical, and research job roles in biomechanics.

Please let me know if you have any questions or need any additional information.

Thank you,

**Erin Feser, MS**  
Lecturer  
Exercise Science and Health Promotion  
Honors Faculty, Barrett The Honors College  
**Arizona State University**  
**School of Nutrition & Health Promotion**  
**College of Health Solutions**  
Health North 401E  
550 N. 3rd St. | Phoenix, AZ 85004  
[602.496-0236](tel:602.496-0236) | [erinfeser@asu.edu](mailto:erinfeser@asu.edu)

Katherine Kenny Feb 8 (1 day ago)

to Erin

Dear Erin – We have reviewed the proposal for MS in Biomechanics from the School of Nutrition and Health Promotion. This proposed degree does not duplicate nor compete with graduate degrees awarded through the College of Nursing and Health Innovation. On behalf of the College of Nursing and Health Innovation we support your proposal. Thank you.

Best,  
*Kathy*

Katherine (Kathy) Kenny, DNP, RN, ANP-BC, FAANP, FAAN  
Associate Dean of Academic Affairs  
College of Nursing and Health Innovation  
Arizona State University  
(P) [602-496-1719](tel:602-496-1719)  
(F) [602-496-0545](tel:602-496-0545)  
[Katherine.kenny@asu.edu](mailto:Katherine.kenny@asu.edu)

**APPENDIX E**

External Memo for Equipment Rental

**From:** [Mike Kocourek](#)  
**To:** [Meghan Vidt](#)  
**Subject:** RE: Equipment for Arizona State University MS Biomechanics Degree  
**Date:** Thursday, August 25, 2016 4:58:17 PM

---

Meghan,

Thanks for the update.

I was at the CSB meeting the week before and then on vacation the week of ASB so a couple of my colleagues were there instead.

We have worked with leasing companies for payment plans and also could look into extended terms or series of payments for systems to coordinate with Funding availability.

How are things going with the Kestrel system that was purchased last year?

I am going to be out in Phoenix on the 16<sup>th</sup> of Sept. and could stop by if you are free.

We have various updates on new software modules and the National Network contracts BioMotion now has in place with Align Networks and Corvel.

Let me know a good day and time range for a call.

Best Regards,

Mike Kocourek  
Vice President of Sales  
Motion Analysis Corporation  
3617 Westwind Boulevard  
Santa Rosa, California 95403  
D: 707-579-6520  
[www.motionanalysis.com](http://www.motionanalysis.com)



---

**From:** Meghan Vidt [mailto:mvidt@asu.edu]  
**Sent:** Wednesday, August 24, 2016 1:46 PM  
**To:** Mike Kocourek  
**Subject:** Equipment for Arizona State University MS Biomechanics Degree

Hello Mike,

I hope you had a nice summer. I didn't see you at the ASB meeting earlier this month, I hope all is well. I'm writing to follow-up on our previous discussion about equipment for the motion assessment laboratory for our Master's degree proposal at Arizona State University. We had previously discussed equipment to establish a gait laboratory with 8-12 kestrel cameras. A question has been posed from our program's leadership with regard to the availability of equipment on either a rental basis or a payment plan. Availability of funds, particularly in lump sum, can be a challenge for academic programs, and I have been asked to explore alternative solutions. Is an agreement outside of a purchase order for equipment a possibility? Thank you for any information that you can provide related to this request. I greatly appreciate all of your continued assistance.

Thanks again,  
Meghan

--  
Meghan Vidt, PhD  
Assistant Professor  
School of Nutrition and Health Promotion  
Arizona State University  
425 North 5<sup>th</sup> Street  
Phoenix, AZ 85004  
Phone: 602-827-2280  
Email: [mvidt@asu.edu](mailto:mvidt@asu.edu)

## Appendix F

## Bureau of Labor Statistics Employment Projections

 BUREAU OF LABOR STATISTICS[Home](#) ▾ [Subjects](#) ▾ [Data Tools](#) ▾ [Publications](#) ▾ [Economic Releases](#) ▾ [Students](#) ▾ [Beta](#) ▾

## Economic News Release

### Employment Projections: 2014-24 Summary

For release 10:00 a.m. (EST) Tuesday, December 8, 2015

USDL-15-2327

Technical information: (202) 691-5700 • [ep-info@bls.gov](mailto:ep-info@bls.gov) • [www.bls.gov/emp](http://www.bls.gov/emp)  
Media contact: (202) 691-5902 • [PressOffice@bls.gov](mailto:PressOffice@bls.gov)

#### EMPLOYMENT PROJECTIONS -- 2014-24

Healthcare occupations and industries are expected to have the fastest employment growth and to add the most jobs between 2014 and 2024, the U.S. Bureau of Labor Statistics reported today. With the increase in the proportion of the population in older age groups, more people in the labor force will be entering prime retirement age. As a result, the labor force participation rate is projected to decrease and labor force growth to slow. This slowdown of labor force growth is expected, in turn, to lead to Gross Domestic Product (GDP) growth of 2.2 percent annually over the decade. This economic growth is projected to generate 9.8 million new jobs--a 6.5-percent increase between 2014 and 2024.

The projections are predicated on assumptions including a 5.2 percent unemployment rate in 2024 and labor productivity growth of 1.8 percent annually over the projected period. Highlights of the BLS projections for the labor force and macroeconomy, industry employment, and occupational employment are included below.

#### Labor Force and the Macroeconomy

--The civilian labor force is projected to reach 163.8 million in 2024, growing at an annual rate of 0.5 percent. (See table 1.)

--The labor force continues to age. The median age of the labor force was 37.7 in 1994, 40.3 in 2004, 41.9 in 2014, and is projected to be 42.4 in 2024. At the same time, the overall labor force participation rate is projected to decrease from 62.9 percent in 2014 to 60.9 percent in 2024.

--The labor force participation rate for youth (ages 16 to 24) is projected to decrease from 55.0 percent in 2014 to 49.7 percent in 2024. The youth age group is projected to make up 11.3 percent of the civilian labor force in 2024 as compared with 13.7 percent in 2014. In contrast, the labor force participation rate for the 65-and-older age group is projected to increase from 18.6 percent in 2014 to 21.7 percent in 2024. This older age group is projected to represent 8.2 percent of the civilian labor force in 2024 as compared with 5.4 percent in 2014.



- Labor force diversity is projected to increase, with white non-Hispanics making up 59.6 percent of the civilian labor force in 2024, compared with 64.6 percent in 2014.
- Real GDP (2009 chained dollars) is projected to grow at an annual rate of 2.2 percent, from \$16.1 trillion in 2014 to \$19.9 trillion in 2024.
- Within GDP, medical services will continue to grow as a share of nominal personal consumption expenditures. This category is projected to account for 18.0 percent of consumption in 2024--higher than its 16.7-percent share in 2014 and 15.0-percent share in 2004.

#### Industry Employment

- Service-providing sectors are projected to capture 94.6 percent of all the jobs added between 2014 and 2024. Of these 9.3 million new service sector jobs, 3.8 million will be added to the healthcare and social assistance major sector.
- The healthcare and social assistance major sector is expected to become the largest employing major sector during the projections decade, overtaking the state and local government major sector and the professional and business services major sector. Healthcare and social assistance is projected to increase its employment share from 12.0 percent in 2014 to 13.6 percent in 2024.
- Construction is projected to add 790,400 jobs by 2024. Even with these additional jobs, employment in the construction major sector is not projected to return to the 2006 peak.
- Manufacturing employment, between 2014 and 2024, is projected to decline at a 0.7 percent rate annually, a more moderate decline than the 1.6 percent rate experienced in the prior decade.

#### Occupational Employment

- Healthcare support occupations and healthcare practitioners and technical occupations are projected to be the two fastest growing occupational groups during the 2014 to 2024 projections decade. These groups are projected to contribute the most new jobs, with a combined increase of 2.3 million in employment, representing about 1 in 4 new jobs.
- Of the 819 detailed occupations, employment in 602 occupations is projected to grow, while employment in 217 occupations is projected to decline.
- Two major groups are projected to have declining employment. Together, production occupations and farming, fishing, and forestry occupations are projected to shed 339,300 jobs during the projections decade.
- For 11 of the 15 fastest growing occupations, some level of postsecondary education is typically required for entry. (See table 5.)