



## **ACADEMIC PROGRAM PROPOSAL FORM**

**DIRECTIONS:** Use this form when proposing a new major or primary field of study, new emphasis, new degree program, or new certificate of achievement.

**DATE SUBMITTED:** October 3, 2014

*Date of AAC Approval:*

**INSTITUTION:** UNLV

**REQUEST TYPE:**

- New Degree
- New Major or Primary Field of Study
- New Emphasis
- New Certificate of Achievement (AAC approval only)

*Date of Board Approval:*

**DEGREE** (i.e. Bachelor of Science): Ph.D.

**MAJOR** (i.e. Animal Science): Interdisciplinary Health Sciences

**EMPHASIS** (i.e. Equine Studies): Subplans: Nursing, Rehabilitation Sciences, Health Physics, and Kinesiology (Exercise Physiology, Biomechanics, Motor Learning/Behavior)

**CREDITS TO DEGREE:** 60

**CERTIFICATE OF ACHIEVEMENT:** NA

**PROPOSED SEMESTER OF IMPLEMENTATION:** Fall 2015

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**Action requested:**

Approval of a PhD in Interdisciplinary Health Sciences

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**A. Brief description and purpose of proposed program**

This Ph.D. in Interdisciplinary Health Sciences (IHS) is an innovative approach to healthcare research and is in response to the growing demand from federal funding agencies (e.g., National Institutes of Health (NIH), Patient-Centered Outcomes Research Institute (PCORI), Agency for Healthcare Research and Quality (AHRQ)) to have an interdisciplinary research approach to complex healthcare problems. Current discipline-specific Ph.D. programs in health are not adequately preparing graduates to identify and utilize the expertise of other disciplines in synergistic collaborations that are best able to handle these complex problems. Because the demand for an interdisciplinary approach is emerging, it is important to develop team science, which refers to conceptual and methodological strategies of collaborative research inquiry, to keep pace with the ever changing global healthcare milieu. This Ph.D. program will address this emerging need and is not only innovative but propitious.

This Ph.D. in IHS will provide students from different disciplines an opportunity to learn how to approach complex healthcare problems by using the expertise from other disciplines. Team science will direct this activity and will prepare students to create functioning teams to solve problems that interface with a number of different disciplines. Understanding team science concepts will better position graduates as valuable and productive research and academic collaborators who will be able to answer broader and more important translational research questions. This team science concept will form the core of the coursework in this program. These core interdisciplinary courses will be the foundation of the Ph.D.; however, students will be able to select a track or sub-plan (i.e., Nursing, Rehabilitation Sciences, Health Physics, Kinesiology) which will also have a set of discipline-specific core classes. This will allow them to apply team science concepts while developing expertise in a specialized area of study. Eventually, it is the goal of this program to add sub-plans in Dental Sciences, Nutrition, Medicine, and Biostatistics.

Interdisciplinary research has been the recent focus of federal health funding agencies; however, there are very few programs that offer an interdisciplinary educational approach like this proposed program. This program is innovative in that it would be one of the first interdisciplinary Ph.D. programs in Health Sciences in the Western U.S. (discussed in more detail later). Since there are so few programs, this represents a great opportunity for UNLV to be a leader in healthcare innovation. Additionally, this program is coming at an important time as growth in the health sector is expected to expand exponentially in the next decade and beyond. This growth will require a whole new cadre of health research educators who will help meet the needs of society by training the next generation of healthcare professionals.

## **B. Statement of degree or program objectives**

This PhD program will be based on the following mission, vision, and outcomes.

### **MISSION**

The mission of the Doctor of Philosophy (Ph.D.) in Interdisciplinary Health Sciences at the University of Nevada, Las Vegas is to advance the science and practice of healthcare for society through the development of individuals with expertise in interdisciplinary research and scientific knowledge translation, built on strong backgrounds in basic sciences and health.

### **VISION**

The vision of the Interdisciplinary Health Sciences Ph.D. program is to produce independent and innovative researchers who will lead interdisciplinary research collaborations, exhibit expertise in specialized areas of health sciences, and whose experience will lead them to become expert translational researchers, educators, and communicators of research findings.

### **OUTCOMES**

Upon completion of the program, all Ph.D. in IHS students will meet the outcomes detailed below.

1. Research outcome: Independently produce sound translational research by generating innovative research questions, casting appropriate designs, implementing study protocols, analyzing data, and critiquing the results in written form.

Deliverable 1: Submit 3 peer-review manuscripts as primary author from data generated during the Ph.D. program or submit a large scale study resulting in a traditional dissertation.

2. Interdisciplinary outcome: Identify external funding sources that are relevant to the research focus area and generate an interdisciplinary grant proposal that is appropriate for that funding announcement.

Deliverable 2: Submit one external interdisciplinary grant proposal to the committee as part of the comprehensive examination.

3. Expertise outcome: Disseminate translational research findings orally and critique the scientific literature in area of specialty with sufficient depth to be considered an expert.

Deliverable 3: Orally defend dissertation.

Deliverable 4: Present at least one national/international presentation as a platform or a poster from research generated during Ph.D. program.

### **C. Plan for assessment of degree or program objectives**

The primary assessment of the program objectives will be the deliverables of the aforementioned program objectives. Additionally, the assessment plan for this program will be the following:

1. The number of students graduating within 5 years of matriculation.
2. The percentage of students that gain employment within 1 year of graduation in a health research environment (e.g., academic, hospital, clinical, health technology), tracked using a one year post-graduate survey.
3. The number of presentations and publications per graduate from research during Ph.D. tenure, tracked using a one year post-graduate survey.
4. The competitiveness of our program will be assessed by the acceptance rate of the program (i.e., number of applicants who matriculate into the program divided by the number of total applicants who have met our minimum application criteria).

### **D. Plan for assessment of student learning outcomes and the use of this data for program improvement**

The sub-plan directors (Graduate Program Director or Graduate College Coordinator) will be in charge of assessment of student learning outcomes in their respective sub-plans. Student learning outcomes that will be evaluated in addition to the items in Section C. above include the following:

1. Course grades. Must maintain a B or better in all coursework.
2. Comprehensive examination. Must complete satisfactorily.
3. Dissertation defense. Must complete satisfactorily.
4. Student publications, grants, and presentations at graduation.
5. Current student surveys. Satisfactory responses or better (on Likert scale responses) for learning objectives questions.
6. Graduation exit survey. Satisfactory responses or better (on Likert scale responses) for learning objectives questions.
7. Alumni survey (2 years from graduation). Satisfactory responses or better on learning objectives.

Once yearly, all of the sub-plan directors will form a committee, the Ph.D. Program Committee, and meet together to report and discuss these outcomes collectively. Survey data, including responses about strengths and weaknesses of the program, will be compiled with other program evaluation data and analyzed in aggregate to determine if the curriculum and rigor are at a sufficient level. These findings will then be reported to the faculty in all of the sub-plans. These data will be used to change or modify program curriculum, policies, and/or procedures. These data will be presented to and reviewed by all School of Nursing (SON) Ph.D. faculty, School of Allied Health Sciences (SAHS) Ph.D. faculty, and department chairs. Based on input from the faculty and chairs, the Ph.D. Program Committee will oversee the implementation of programmatic changes and will decide on future directions.

### **E. Contribution and relationship of program objectives to**

#### **i. NSHE Master Plan**

According to the 2010 NSHE Plan for Colleges and Universities, this Ph.D. in IHS is aligned with the Master Plan Goals to produce more graduates and external funding and NSHE Strategic Objective #2 to increase contributions to research knowledge. As indicated, an important area of

focus for universities within the system is to improve external funding and, in particular, healthcare funding. We foresee this Ph.D. program in IHS as a necessary step in improving the infrastructure and research environment in the Division of Health Sciences. Ph.D. programs like the one proposed will facilitate interdisciplinary collaborations. Additionally, and perhaps more importantly, the composition of these interdisciplinary teams will allow faculty to dig deeper into healthcare problems and to ask richer and more meaningful research questions. Once the program matures, graduates of this program will become future collaborators at other institutions for multi-site trials that are becoming increasingly important in health outcomes research. Procuring external funding in healthcare is challenging, but the chances are improved when there are innovative and collaborative interdisciplinary teams. Having a healthy Ph.D. program, supplemented by post-doctoral researchers, and engaged faculty who are asking important and meaningful health questions will increase the chances of procuring funding from large governmental and healthcare agencies.

This program also is consistent with NSHE goals for funding and resources. Because this program will rely on current infrastructure and existing faculty, there will be little financial outlay except for an initial investment in graduate assistantships as the program grows. Eventually, the goal is to have these assistantships replaced by soft or externally-funded positions.

## **ii. Institutional mission**

UNLV is a research institution with a mission-stated commitment to provide rigorous educational programs. The Ph.D. in IHS holds to that aspiration and the developers of this program have used this tenet to develop the curriculum and establish policies and procedures that will ensure that students get a rigorous and advanced education in interdisciplinary team sciences. The mission statement also stipulates a "...commitment to our dynamic region and State centrally influences our research and educational programs, which improves our local communities." This program will produce the next generation of healthcare faculty who will train future healthcare professionals for our region and State. Moreover, this Ph.D. program introduces an innovative educational approach that will strengthen meaningful research collaborations, which are critical to solving the future healthcare challenges of Nevada and beyond. This innovative approach to education is wholly consistent with the mission statement "Our commitment to the national and international communities ensures that our research and educational programs engage both traditional and innovative areas of study and global concerns." UNLV is clearly committed to extending its reach via research and educational models. This proposed Ph.D. program will do just that by focusing on interdisciplinary team science to drive research studies that will address the healthcare issues of tomorrow. Since this proposed interdisciplinary health sciences program is one of only a few in the Western U.S., this fits with UNLV's mission commitment to have an "...entrepreneurial, innovative, and unconventional spirit." The program will position UNLV as a leader in interdisciplinary health sciences education and will likely attract highly qualified applicants from not only the Western U.S., but the entire nation and internationally.

## **iii. Campus strategic plan and/or academic master plan**

This program is consistent with UNLV Core Theme 1 which has a primary outcome of promotion of student learning and success. An interdisciplinary approach will allow students to get broad exposure to important health problems and will also allow them to learn different philosophical approaches specific to each discipline. From this perspective, graduates will have a broader understanding of approaches to healthcare research and this will logically give them a strong research foundation from which to build a career in healthcare research.

This Ph.D. in IHS is also consistent with UNLV Core Theme 2 which has the outcome of advancing research, scholarship, and creative activity. The bulk of the core classes in this Ph.D. are research-focused (e.g., Interdisciplinary Team Science, Translational Research Design, Interdisciplinary Grant Writing for Health Sciences, Clinical Trial Design and Analysis); this foundation will improve the students' chances for success in scholarly activity. Subsequently, a productive scholarly record from this Ph.D. in IHS will help graduates to procure employment and post-doctoral positions. Graduates of this program will be attractive to future employers because they will have experience and expertise in team science and will have the skill set to be successful in organizing and managing interdisciplinary research.

Broadly speaking, this program is also consistent with Core Theme 3 (Foster a Diverse Campus Population and Engagement with the Community) in that this program will focus on clinical issues that will undoubtedly engage local hospitals, clinics, health-related businesses, and support groups.

This program is consistent with Tier One Performance Targets (graduate student success, degree productivity and efficiency). Because the curricular plan for this program is not credit heavy, students will have to opportunity to focus on research productivity. A concentrated curriculum with an emphasis on research productivity will produce more meaningful and efficient dissertations. A healthy Ph.D. program is important in moving faculty research agendas faster and will also improve faculty procurement of external funding because there will be a greater number of pilot studies from which a faculty member can build a strong argument. In general, this program indirectly improves faculty productivity which is part of the UNLV Tier One Two-Part Plan (“...increased faculty productivity and overall research activity...”).

#### **iv. Department and college plan**

This interdisciplinary Ph.D. program is consistent with the educational and research components of the mission statements and strategic plans of the SAHS and SON. For the SAHS, this Ph.D. program is consistent with the mission statement in that it will provide quality graduate level instruction and will have an emphasis on basic and applied research. Additionally, it is consistent with the following SAHS Strategies:

- #1: Promote and develop collaborative research teams;
- #2: Support and develop necessary research infrastructure; and,
- #3: Enhance graduate programs (especially Action #2, which is to explore collaborative master and doctoral level degree programs and develop these programs where appropriate and Action #3 which is to support and encourage faculty who can contribute to collaborative graduate degree programs)

For the SON, this program is consistent with the Mission and Vision statements in that it will help shape the future of nursing education and research by producing graduates who will be well equipped to become leaders in health education and research for Nevada and beyond.

Specifically, this program address the following goals of the SON:

1. To expand undergraduate and graduate programs while assuring high quality student-centered educational programs;
2. To increase nursing research to advance the science of nursing and to support UNLV's movement toward Carnegie Research University (very high research activity);
4. To develop partnerships to improve community health outcomes through teaching, research, and service activities.

#### **v. Other programs in the institution**

In the Division of Health Sciences, there are three professional doctoral programs, Doctor of Nurse Practice, Doctor of Dental Medicine, and Doctor of Physical Therapy; however, none of these programs are research-focused doctoral programs. In the Division, there are only two Ph.D. programs, one in the School of Nursing and one in the Department of Kinesiology and Nutrition Sciences. Since both the School of Nursing and the Department of Kinesiology and Nutrition Sciences are participating in this current proposal, both of those programs will eventually merge all or part of those Ph.D. programs into this interdisciplinary proposal.

Several new core courses offered in this interdisciplinary health science program such as "interdisciplinary team science," "translational research design", "interdisciplinary grant writing for health sciences," and "clinical trial design and analysis" should be of interest to students of other Ph.D. programs at UNLV (e.g., Psychology, Life Sciences, Chemistry, Engineering [Civil, Mechanical, Biomedical], Special Education), especially if they have research interests that have health or clinical elements.

**vi. Other related programs in the System**

There are no other Ph.D. programs like this in the Nevada System of Higher Education.

**F. Evaluation of need for the program**

**i. Intrinsic academic value of program within the discipline**

Healthcare professions are encountering healthcare problems that cannot be addressed or evaluated by one discipline. With the emergence of new biological and behavioral knowledge, healthcare disciplines are challenged to create solutions that are far reaching. Healthcare problems presented by individuals, families and communities are complicated and require a team of interdisciplinary professionals to develop reasonable and economically feasible interventions and solutions. A Ph.D. program that trains students from different disciplines to collaborate on research encourages new perspectives and creative solutions for unique and complex healthcare problems. These future potential collaborations may help improve the health of society either directly or indirectly because of their findings. Graduates of this program will also be well-positioned to take leadership roles into their respective disciplines about interdisciplinary team science. Since there are so few programs of this kind in the U.S., they will likely become expert consultants to a new generation of researchers engaging in interdisciplinary health research.

**ii. Evidence of existing or projected local, state, regional, national and/or international need for program**

In the healthcare professions, the professoriate is aging, and it is anticipated that in the next 10-15 years approximately 40% of faculty will be retired. Consider the example of physical therapy (PT). In PT, 33% of core academic faculty are over the age of 55 and 50% are over the age of 50. Clearly, the profession is expecting considerable turnover in the next decade. Moreover, the Commission on Accreditation in Physical Therapy Education (CAPTE), PT's accreditor, has reported that there are at least 153 open faculty positions in PT education programs currently and these programs anticipate that only 50 of these vacancies will be filled within the next year (CAPTE: 2012-2013 Fact Sheet PT Education Programs, Updated 03/27/2014 - [http://www.capteonline.org/uploadedFiles/CAPTEorg/About\\_CAPTE/Resources/Aggregate\\_Program\\_Data/AggregateProgramData\\_PTPrograms.pdf](http://www.capteonline.org/uploadedFiles/CAPTEorg/About_CAPTE/Resources/Aggregate_Program_Data/AggregateProgramData_PTPrograms.pdf)). This suggests that core faculty retirements are outpacing the education of suitably trained Ph.D. faculty applicants. This is compounded when you consider that only 47.8% of core faculty in PT programs have a Ph.D. (most of the remainder have professional doctorates (DPT)) which is less than the CAPTE Evaluative Criteria that stipulates that programs need to "provide evidence that at least 50% of the core faculty have advanced degrees...if necessary provide a plan to achieve this blend." The

fact that there is an accreditation requirement of more than a 50% blend and the national average is 47.8% means that many programs have been unsuccessful finding applicants with Ph.D.s and have had to make due with DPT trained faculty who may or may not have sufficient research experience to maintain a suitable research agenda for CAPTE faculty research requirements.

In the field of nursing, according to the American Association of Colleges of Nursing (AACN), faculty shortages are due to a number of factors of which an aging faculty and increasing job competition from clinical agencies are two major contributors (AACN, [www.aacn.nche.edu/media-relations/FacultyShortageFS.pdf](http://www.aacn.nche.edu/media-relations/FacultyShortageFS.pdf)). In a recent report, approximately 250 doctorally-prepared nursing faculty will be eligible for retirement each year ([www.us.elsevierhealth.com/product.jsp?isbn=00296554](http://www.us.elsevierhealth.com/product.jsp?isbn=00296554)).

To further compound the problem, many potential faculty in the health disciplines, like physical therapy and nursing, can make more money as clinicians than they can as academicians and many opt to work in a more lucrative clinical setting. For instance, clinical and private sector settings are paying nurses \$14,000 to \$20,000 more per year than academic positions ([www.aanp.org/research/aanp-researchand](http://www.aanp.org/research/aanp-researchand) [www.aacn.nche.edu/IDS](http://www.aacn.nche.edu/IDS)). While the above data are specific to physical therapy and nursing academia, similar faculty vacancies may be extrapolated for other healthcare professions. Importantly, a big problem with unfilled vacancies in the health professions is that it poses a barrier to new program initiation and achieving or maintaining programmatic accreditation requirements or increasing enrollments at existing institutions to meet emerging societal needs.

From a local and regional perspective, there are no interdisciplinary programs like the current proposal in the Intermountain West. The nearest similar program is at the University of Texas, El Paso. However, there are single discipline Ph.D. programs in the Intermountain West, including California, that are similar to the sub-plans in this proposal (note: none of these programs are interdisciplinary-focused):

- a. Nursing (Arizona State University, University of Arizona, Northern Arizona University, University of Phoenix, Azusa Pacific University, Loma Linda University, University of California Davis, University of California Irvine, University of California Los Angeles, University of California San Francisco, San Diego University, University of Colorado, Northern Colorado University, Idaho State University, University of New Mexico, New Mexico State University, Oregon Health and Sciences University, University of Utah, Rocky Mountain University of Health Professions, University of Washington, Washington State University);
- b. Rehabilitation Sciences (University of Utah, University of Colorado, University of Southern California, University of Arizona, Brigham Young University, Rocky Mountain University of Health Professions, University of Washington);
- c. Health Physics (Idaho State University, Colorado State University, and Oregon State University); and,
- d. Kinesiology and Nutrition Sciences (Loma Linda University, Samuel Merritt University, University of Southern California, University of California Los Angeles, Colorado State University, Northern Colorado University, University of New Mexico, Oregon State University, University of Oregon, Brigham Young University, University of Utah).

From a national perspective, the idea of an interdisciplinary Ph.D. in health sciences is not a totally new concept. For instance, Virginia Commonwealth, Marquette, Temple, Rochester, Seton Hall, University of Medicine and Dentistry of New Jersey, and Oklahoma all offer

programs that have interdisciplinary Ph.D.s in health sciences with varying approaches. To our knowledge, these programs, along with the University of Texas, El Paso are the only programs that have an interdisciplinary health sciences focus. Because there are so few programs like the present proposal, especially in the western U.S., this presents a great opportunity for UNLV to position itself as an innovator and leader in this unique educational approach.

**iii. If this or a similar program already exists within the System, what is the justification for this addition**

Not applicable. There are no other programs like this in any NSHE institution.

**iv. Evidence of employment opportunities for graduates (state and national)**

The most logical employment opportunity for graduates of this Ph.D. program would be academic institutions both regionally and nationally. Just as there are shortages in clinicians in the nursing and allied health professions, there are also considerable shortages in Ph.D. prepared faculty to train the next generation of healthcare providers. As was mentioned previously in Section F - ii., there is considerable turnover due primarily to an aging professoriate that has left many health programs without suitably prepared Ph.D. faculty. This problem represents an opportunity for the graduates of this program to help fill this void. While this problem is very much a national problem, there are local Nevada academic institutions that would benefit from graduates of this program. In Nursing, there are several programs in Nevada (i.e., University of Nevada, Las Vegas; University of Nevada, Reno; Touro University; Nevada State College; College of Southern Nevada; Roseman University of Health Sciences; Pima Medical Institute; Carrington College) that would benefit from Ph.D. graduates of this program. In Rehabilitation Sciences, there are two Physical Therapy programs (i.e., University of Nevada, Las Vegas; Touro University), one Speech Therapy program (University of Nevada, Reno), one Athletic Training program (University of Nevada, Las Vegas), and one Occupational Therapy program (Touro University). In Health Physics, there are no other programs in the state of Nevada except the University of Nevada, Las Vegas. In Kinesiology, the only program is the University of Nevada, Las Vegas; however, the University of Nevada, Reno is developing an undergraduate program in Kinesiology. They do not currently have a Ph.D. program in Kinesiology.

This Ph.D. in IHS program will help meet state, regional, and national workforce demands for qualified health professions faculty to populate the faculty of programs that are anticipating significant growth in the future. Programs will need to expand enrollment to keep pace with growing societal demands and this means that more faculty will be needed, especially in the health sciences where growth is expected to considerably outpace many other employment sectors (e.g., computer/mathematical occupations (+9.5%), architectural/engineering occupations (+8.3%), business/financial operations (+17.9%), management (+4.7%), education/training/library (-2.7%), sales (+2.0%), arts/design/entertainment/sports/media (+11.6%), production (0.0%), installation/maintenance/repair (-7.6%)). Consider the following employment projections for health professions over the next 10 years: Registered Nurses (+19%); Licensed practical and licensed vocational nurses (+25%); Nurse Practitioners (+31%); Occupational therapists (+29%); Orthotists and Prosthetists (+36%); Physical Therapists (+36%); Rehabilitation counseling (+28%); Audiologists (+34%); Respiratory therapists (+19%); Speech therapists (+19%); Athletic Training (+21%); Nuclear Medicine (+20%); Radiation Therapists (+24%); and, Exercise physiologists (+9%). (data accessed on 07/16/2014 from the Bureau of Labor Statistics, U.S. Department of Labor: Occupational Outlook Handbook, Healthcare, <http://www.bls.gov/ooh/healthcare/home.htm>).

Taken together, these data suggest that an increased societal demand for healthcare will cause an increased need for healthcare professionals, which in turn will cause a need for more faculty to train new professionals. Considering the aging population, aging professoriate, and paucity of

Ph.D. trained faculty in health faculty positions, it is no doubt that graduates of this Ph.D. program will help fill important local, regional, and national healthcare demands.

In addition to academia, graduates of this Ph.D. program will also be uniquely prepared to become researchers and leaders in healthcare research/innovation/product development for public and private industry (e.g., pharmaceuticals, medical technology, medical equipment, biomedical engineering), hospitals, clinics, research/healthcare consortiums (e.g., Intermountain HealthCare, Cleveland Clinic Lou Ruvo Institute, Huntsman Cancer Institute, Rancho Los Amigos National Rehabilitation Center, Rehabilitation Institute of Chicago), and insurance companies. Graduates of this program will be well positioned to assume roles in these industries and may also fill governmental or social agency administrative positions in leading the implementation and evaluation of the Affordable Care Act and other future health initiatives. Indirectly, this program has the potential to address many needs across a broad array of educational, governmental, and private industry which directly or indirectly contributes to societal health and quality of life.

**v. Student clientele to be served (Explain how the student clientele is identified)**

In order to get the best and brightest students to UNLV for this program, we will cast a fairly broad net for students nationally and internationally. These students will be recruited at national and international conferences, advertising on list services, and advertisements with professional organizations. Additionally, faculty will individually recruit students based on their research reputation and the amount of funding available for graduate assistantships. However, based on surveys of alumni and current students, the core of our program will be current Nevada residents who are more likely to stay in Nevada. Consider the following results from 3 surveys conducted to the physical therapy community about this Ph.D. in IHS:

1. Nevada Physical Therapists (n=79)
    - a. 24% were likely or very likely to enroll in the program.
    - b. Of those 24%, all but two were likely to enroll in the next three years.
  2. UNLV Physical Therapy Alumni (n=80)
    - a. 21% were likely or very likely to enroll in the program.
    - b. Of those 21%, all but two were likely to enroll in the next three years.
  3. Current Doctor of Physical Therapy students (n=56)
    - a. 11% were likely or very likely to enroll in the program after graduating.
- Based on these surveys it is clear that there is indeed local interest in the program.

**G. Detailed curriculum proposal**

**i. Representative course of study by year (options, courses to be used with/without modification; new courses to be developed)**

The foundation for the program will be 24 core credits within the research and interdisciplinary research cores. In the interdisciplinary research core, students will be required to take three of five of the following courses (\*new course; ^modification of existing course):

- HSC 701 Interdisciplinary team science (3 credits)\*
- HSC 702 Translational research design (3 credits)\*
- HSC 703 Interdisciplinary grant writing for health sciences (3 credits)\*
- HSC 704 Statistics for health sciences (3 credits)^
- HSC 705 Clinical trial design and analysis (3 credits)\*

In the interdisciplinary core, students will be required to take all of the following courses:

- HSC 710 Seminar (1 credit, to be taken three times)\*
  - o Example topics: global healthcare, health policy, health systems, health innovations
- HSC 711 Dissertation (12 credits minimum required)^
  - o 2 committee members will be from faculty who are in other sub-plans.

Each of the sub-plans (Nursing, Rehabilitation, Health Physics, and Kinesiology) for the Ph.D. in IHS will be a total of 36 credits. Each of the sub-plan core coursework will be described in turn.

#### NURSING SUB-PLAN CORE

- NURS 709 Teaching and Learning (3)
- NURS 771 Theory Development in Nursing (3)
- NURS 772 Nurse as Leader (3)
- NURS 775 Statistical Methods for Nursing Research I: Univariate Methods (3)
- NURS 780 Quantitative Research Methods in Nursing (3)
- NURS 781 Qualitative Research Methods in Nursing (3)
- NURS 785 Special Topics in Nursing Research/research elective (3)
- NURS XXX Bio-behavioral approaches in nursing research (3)\*
- NURS XXX Introduction to laboratory procedures for bio-behavioral studies (2)\*
- NURS XXX Bio-behavioral mechanism, pathways and measurements (3)\*
- NURS XXX Bio-behavioral Nursing Seminar: Developing a dissertation study (4)\*
- NURS 789 Independent study/Elective course in research (3)

#### REHABILITATION SCIENCES SUB-PLAN CORE

Sub-plan core coursework (21 credits):

- DPT 710 Neuroplasticity (3)\*
- DPT 711 Pathobiomechanics (3)\*
- DPT 712 Physiological bases of rehabilitation (3)\*
- DPT 713 Genomic and regenerative rehabilitation concepts (3)\*
- Must take at least 3 additional graduate level courses (9 credits) relevant to course of study

Rehabilitation research core (12 credits):

- DPT 702 Critical appraisal and synthesis of research in rehabilitation (3)\*
- DPT 703 Measurement theory and outcomes in rehabilitation (3)\*
- Must take at least 2 additional graduate level statistics courses (6 credits)

Pedagogy core (3 credits):

- Must take at least one pedagogy class from College of Education

#### HEALTH PHYSICS SUB-PLAN CORE

Health Physics sub-plan core coursework (18 credits)

- HPS 602 – Detectors (3)
- HPS 603 – Detector Lab (3)
- HPS 701 – Nuclear Physics (3)
- HPS 703 – Interactions (3)
- HPS 720 – Dosimetry (3)
- HPS 730 – Advanced Radiation Biology (3)

Health Physics electives (18 credits) - complete 18 credits of electives approved by the HP sub-plan committee. Examples:

- HPS 611 - Graduate Seminar(1-3)
- HPS 616 - Advanced Health Physics (3)
- HPS 670 - Environmental Health Physics (3)
- HPS 718 - Radiochemistry Lab (3)
- HPS 719 - Radiochemistry lecture (1)
- HPS 740 - Imaging Physics (3)
- HPS 742 - Physics of Radiation Therapy (3)
- HPS 742L - Physics of Radiation Therapy Lab (3)
- HPS 750 - Radiation Risk Assessment (3)
- HPS 760 - Waste Management (3)

- HPS 790 - Clinical Internship (1-3)
- HPS 795 - Independent Study (1-9)
- HPS XXX - Professionalism and Ethics (1)\*

#### KINESIOLOGY SUB-PLAN CORE:

Two of the following four courses (6 credits total):

- KIN 736 Biomechanical Applications in Kinesiology (3)
- KIN 740 Advanced Exercise Physiology (3)
- KIN 760 Motor Skill Learning & Performance (3)
- KIN 765 Neurophysiology of Movement (3)

Both of the following courses (6 credits)

- KIN 752 Selected Applications in Statistics 2 (or other advanced stat course) (3)
- KIN 789 Dissertation Prospectus (3)

Students will then select an area of emphasis and take 24 credits within that area:

Biomechanics electives (24 credits)

- KIN 700 Special Problems (up to 9 credits)
- KIN 717 Survey and Analysis of Professional Literature
- KIN 737 Biomechanics of Strength
- KIN 740 Advanced Exercise Physiology
- KIN 760 Motor Skill Learning & Performance
- KIN 765 Neurophysiology of Movement
- KIN 788 Independent Study (up to 9 credits)
- KIN 656 Biomechanics of Endurance Performance
- DPT 711 Pathobiomechanics
- EGG 651 Ergonomics
- EGG 747 Orthopedic Biomechanics
- EGG 750 Analysis of Human Movement
- Other graduate level courses relevant to course of study

Exercise Physiology electives (24 credits)

- KIN 607 Comp & Integrative Med. Nutr Therapy
- KIN 657 Physiology of Endurance Performance
- KIN 700 Special Problems (up to 9 credits)
- KIN 717 Survey & Analysis of Prof. Literature in KIN
- KIN 720 Issues & Trends in Exercise Physiology
- KIN 738 Human Physiology
- KIN 739 Evaluation of Physical Work Capacity
- KIN 745 Human Energy Metabolism
- KIN 744 Thermoregulation during Physical Work
- KIN 765 Neurophysiology of Movement
- KIN 788 Independent Study (up to 6 credits)
- KIN 7XX Advanced Sport Nutrition\*
- KIN 7XX Experimental Techniques in Nutrition & Metabolism\*
- Other graduate level courses relevant to course of study

Motor learning/Control electives (24 credits)

- KIN 614 Enhancing Mental and Motor Abilities
- KIN 700 Special Problems (up to 9 credits)
- KIN 743 Research Techniques in Biomechanics
- KIN 788 Independent Study (up to 9 credits)
- EGG 750 Analysis of Human Movement

- PSY 620 Psychology of Learning
- PSY 701 Biological Bases of Behavior
- PSY 702 Sensation and Perception
- PSY 703 Cognitive Psychology
- PSY 719 Behavioral Neuroscience
- PSY 720 Systems and Cognitive Neuroscience
- PSY 741 Psychology and Health
- PSY 742 Psychopharmacology
- PSY 744 Neuropsychology
- KIN 746x Matlab Programming
- KIN 762 – Motor Learning Applications
- Other graduate level courses relevant to course of study

## ii. Program entrance requirements

Students will be admitted into the program by the program director of the sub-plan or sub-plan Ph.D. admissions committee to which they are applying. However, the minimum requirements of the Ph.D. in IHS is an overall undergraduate/graduate GPA >3.25, >50<sup>th</sup> average percentile on the quantitative, verbal, and analytic portions of the GRE (taken within the last 5 years), three letters of recommendation, interview with two core faculty members, curriculum vitae, and personal statement. If the applicant is from a country where English is not an official language, then the applicant must demonstrate English proficiency by scoring 80 or higher on the Test of English as a Foreign Language, by scoring 7.0 or higher on the International English Language Testing System, by earning a score of greater than the 70<sup>th</sup> percentile on the GRE-verbal, or by earning a baccalaureate or higher at a regionally accredited institution in the U.S. or in a university where English is the language of instruction.

Specific sub-plan requirements include the following:

1. Nursing: must have a BSN or MSN from an accredited School of Nursing. A Master's degree in a health-related discipline and a BSN from an accredited institution would also meet this requirement. Applicants must have a current RN license in the U.S. or country of residence.
2. Rehabilitation: must have graduated from an accredited rehabilitation clinical sciences profession (e.g., physical therapy, occupational therapy, speech therapy, athletic training) at either the Master's or first-professional clinical doctoral level. If the applicant has a professional Bachelor's degree only, then 30 additional credits of elective coursework (determined by the sub-plan committee) will be required.
3. Health Physics: must have graduated with a Master's degree from a regionally accredited institution in the field of health physics, physics, chemistry, engineering or other related field. Applicants with Bachelor degrees may be admitted to the program but are required to take an additional 30 credits of elective coursework (determined by the Health Physics Graduate Committee).
- 4: Kinesiology: must have graduated with a Master's degree from a regionally accredited institution in the field of kinesiology/exercise science, biology, chemistry, computer science, engineering, psychology or other related field.

## iii. Program completion requirements (credit hours, grade point average; subject matter distribution, preprogram requirements)

Students must complete 24 credits in the interdisciplinary health sciences core (12 of which are dissertation credits) and must complete 36 credits in the sub-plan core. The minimum credit total in the program is 60 credits. Completion of the interdisciplinary and sub-plan cores must occur within 8 years of enrollment and with a cumulative GPA >3.0. Grades below B will not be acceptable. If the grade was received in a core class, then the student must retake the class. If a core class was not satisfactorily passed on two attempts, the student will be dismissed from the

program. If the grade was in an elective class, then the class can be retaken or replaced with another elective class.

Students will complete a comprehensive examination which will be an interdisciplinary grant application. That is, this extramural grant proposal will have to have an interdisciplinary team science approach to answer a focused and important health science question. If a student fails the comprehensive examination they will be able to retake it again after a minimum of three months. If they fail a second time they will be separated from the program.

Students will also be required to complete a prospectus prior to dissertation in a focused research area. The dissertation committee will have an interdisciplinary element as two of the committee members will be from the chosen sub-plan but the other two committee members will be from outside the sub-plan discipline (one will be the Graduate College Representative). Thus, the committee will have an interdisciplinary membership and will have a stronger voice for a team science approach.

Students will complete at least one national/international presentation as a platform or a poster from research generated during their Ph.D. program.

**iv. Accreditation consideration (organization (if any) which accredits program, requirements for accreditation, plan for attaining accreditation - include costs and time frame)**

This Ph.D. program would fall under the purview of UNLV's Northwest Commission on Colleges and Universities (NWCCU). As such, it will be subject to NWCCU standards and accreditation criteria.

In addition NWCCU accreditation, the SON and SAHS also have programs that are accredited by their respective professional clinical organizations. Since the proposed Ph.D. program would not be considered a professional clinical program, it would not need professional clinical accreditation. Therefore, this proposed program will not be subject to any accreditation standard except NWCCU accreditation standards. However, should such a specialized accreditor for interdisciplinary health sciences become recognized, we would seek that accreditation. In the interim, we will plan for the Ph.D. program to undergo a program review 7 years after its initiation.

**v. Evidence of approval by appropriate committees of the institution**

The proposed program has been approved by the following committees:

1. SAHS Executive Committee;
2. Department of Physical Therapy Ph.D. Committee;
3. Department of Health Physics Ph.D. Committee;
4. Department of Kinesiology and Nutrition Sciences Graduate Faculty;
5. SON Executive Committee;
6. SON Ph.D. Committee;
7. SON faculty (vote tally: 28 in favor, 0 opposed, 1 abstaining vote) and SON Academic Affairs Council; and,
8. SAHS faculty (vote tally: 24 in favor, 1 opposed, 2 abstaining votes).

**H. Readiness to begin program**

**i. Faculty strengths (specializations, teaching, research, and creative accomplishments)**

This program will build on the strengths of the present faculty and the resources within all four departments. The Schools of Nursing and Allied Health Sciences have in total 48+ Ph.D. faculty

with graduate faculty status (SON=17; Rehabilitation Sciences=8; Health Physics=6; and Kinesiology and Nutrition Sciences=12). Moreover, these faculty members have expertise in many diverse clinical areas, which will enhance the educational experience of students learning to collaborate with different disciplines. Such exposure to different approaches and expertise will produce graduates that will have a larger repertoire of educational and research experiences to draw from compared to a traditional Ph.D. in a singular health discipline.

The faculty for this Ph.D. in IHS will come from the faculty of the four sub-plans, each of which is detailed below.

There are 17 faculty members in the School of Nursing who can contribute to the sub-plan and core. Each member can provide scholarship and research skills necessary for the program. Four of the tenured faculty have received NIH funding. Two faculty members have had significant program grant funding. Of the nine tenured faculty, all have received some extramural funding. In addition, there are two NIH-trained bio-behavioral nurse specialists and 3 additional faculty members who have participated in a month-long NIH training program exploring bio-behavioral strategies and lab techniques necessary for some of the Institute's research initiatives. The areas of expertise include pain, exercise, hypertension, depression, sleep, balance, behavioral avoidance, occupational safety, and stress. All 17 faculty members have published and given national or international presentations.

The faculty in the Rehabilitation Sciences sub-plan will consist of 8 Ph.D./D.Sc. (Doctor of Science) faculty (4 associate level) in the Department of Physical Therapy with a strong publication history (15-22 publications per year; 15-20 national/international presentations per year). The areas of expertise covered by these faculty include: orthopedics (4 faculty), acute care and wound care (1 faculty), neuro rehab (3 faculty), pediatrics (1 faculty member), biomechanics (2 faculty members), balance and falls (2 faculty). Grant funding from this group has mostly come from internal sources; however, these faculty have become increasingly competitive for external grants in recent years.

Health Physics: There are currently 6 Ph.D. level faculty who will participate in the Health Physics sub-plan. These faculty have expertise in a number of health and medical physics-related areas including radiation biology, radiation physics, nuclear waste management, reactor physics, radiochemistry, diagnostic imaging, radiation therapy physics and laser biophysics. The six faculty are active researchers and have an excellent track record of obtaining extramural grants from a number of agencies including NIH, DOE and NASA. In total, these faculty publish between 30 and 35 peer-reviewed manuscripts annually. Many of these papers are published in high impact journals including Science, Physical Review Letters, and PLoS One.

The faculty in the Department of Kinesiology and Nutrition Sciences (KNS) will service this sub-plan which will focus on three areas of concentration: biomechanics, exercise physiology and motor control. Twelve Graduate Faculty members (6 full professors, 3 associate professors, 3 assistant professors), all Ph.D. prepared, are active scholars as evidenced by recent scholarly activity (over 30 peer-reviewed publications/year; over 35 regional/national/international presentations/year). Four additional masters-prepared faculty, active in service to the community and the profession, will provide additional program support. Collectively, KNS faculty has submitted numerous extramural grants and is also highly successful in attracting internal, collaborative funding.

**ii. Contribution of new program to department's existing programs (both graduate and undergraduate) and contribution to existing programs throughout the college or university**

This Ph.D. in IHS will be complementary to the existing professional programs in the SON and the SAHS, including the professional doctoral programs (e.g., Doctor of Physical Therapy, Doctor of Nursing Practice, Doctorate in Medical Physics (proposed)), which are clinically-focused rather than research-focused. The clinical doctoral programs will likely inform the clinical aspects of the Ph.D. in IHS, and likewise the Ph.D. in IHS will likely strengthen the research experience of the clinical doctoral programs.

This interdisciplinary Ph.D. in IHS is also complementary in that students in this program may be graduate assistants in the undergraduate and professional programs of the SON and SAHS. It is anticipated that they will also be lab managers, research collaborators/mentors, and course instructors in several of the graduate and undergraduate professional programs.

**iii. Completed prior planning for the development of the program (recent hires, plans for future hires, securing of space, curricular changes, and reallocation of faculty lines)**

Because this program will rely on existing faculty, new hires and future lines are not anticipated to be crucial for the success of this program. However, new hires that are already in place will eventually help build the program going forward.

**iv. Recommendations from prior program review and/or accreditation review teams**

This is a new program, so this is not applicable.

**v. Organizational arrangements that must be made within the institution to accommodate the program**

The organization of this interdisciplinary Ph.D. will be led by a committee, the Ph.D. in IHS Program Committee, comprised of one representative of each sub-plan (e.g., sub-plan program director). Any impasses that cannot be resolved with this committee will be made by the Dean of the SON and SAHS. There will be no other organizational arrangements involved.

Administrative assistant help will come from the existing administrative assistants within the sub-plans, and they will help administer only their sub-plans. There are no plans for an administrative assistant for this program at this time.

**I. Resource Analysis**

**i. Proposed source of funds (enrollment-generated state funds, reallocation of existing funds, grants, other state funds)**

This program will be funded using current department and school resources. The program will be initiated and supported through reallocation of existing SON/SAHS faculty effort.

The success of this program will be greatly enhanced by having 12 dedicated graduate assistantships at the Ph.D. level, three for each department each year. We do not anticipate the need for additional faculty or laboratory space in the first few years of the program; however, if these programs are productive and growing then it is plausible that more graduate assistants, additional research infrastructure, and more faculty may be needed. However, this would be many years down the road and is unlikely to occur within our 5 year projections.

**ii. Each new program approved must be reviewed for adequate full-time equivalent (FTE) to support the program in the fifth year. Indicate if enrollments represent 1) students formally admitted to the program, 2) declared majors in the program, or 3) course enrollments in the program.**

**a. (1) Full-time equivalent (FTE) enrollment in the Fall semester of the first, third, and fifth year.**

**1st Fall semester** 8 (Nursing=3, Rehab=2, HP=1, Kinesiology=2)

**3rd Fall semester** 16 (Nursing=5, Rehab=4, HP=3, Kinesiology=4)

**5th Fall semester** 31 (Nursing=8, Rehab=5, HP=3, Kinesiology=5)

**(2) Explain the methodology/assumptions used in determining projected FTE figures.**

These were conservative estimates based on historical data (Nursing and Kinesiology and Nutrition Sciences), surveys (Nursing and Rehabilitation Sciences), funding, and faculty readiness. Based on the surveys, the interest in part-time and online delivery methods would be of high interest to a majority of respondents. However, we are basing the above numbers on full-time, on-campus students.

**b. (1) Unduplicated headcount in the Fall semester of the first, third, and fifth year.**

**1st Fall semester** 14 (Nursing=5, Rehab=4, HP=1, Kinesiology=4)

**3rd Fall semester** 29 (Nursing=10, Rehab=8, HP=3, Kinesiology=8)

**5th Fall semester** 34 (Nursing=13, Rehab=9 HP=3, Kinesiology=9)

**(2) Explain the methodology/assumptions used in determining projected headcount figures.**

Same as Section I - ii.a.2. Additionally, the projected head counts have been determined based on the number of faculty advisors in each sub-plan, anticipated growth in external funding, and goals of the sub-plans.

**iii. Budget Projections – Complete and attach the Five-Year Budget Projection Table.**

Please see the budget projections form.

**J. Facilities and equipment required**

**i. Existing facilities: type of space required, number of assignable square feet, space utilization assumptions, special requirements, modifications, effect on present programs**

This Ph.D. program will utilize existing teaching and research facilities. Here we detail the existing research facilities:

**NURSING**

The Schneider Muscle Laboratory and the SON/SAHS Core Laboratory are 1131 square feet and 660 square feet, respectively. These labs house wet lab equipment and instrumentation for biological and molecular assays. The Schneider Muscle laboratory is also designated as a satellite animal facility.

The Clinical Simulation Center of Las Vegas is a 31,000 square foot facility located at the Shadow Lane campus. (See the following link for the floor plan, (<http://csclv.nevada.edu/csclv/index.cfm/facilities/floor-plan/>) The facility has resources for a number of different learning experiences. For example, for nurse practitioner and senior nursing students in NURS 419 (Care of Individuals and Families with Mental Health Disruption), 12 Standardized patient rooms are used by trained actors and actresses to demonstrate different symptoms (physical and psychological) that these students are required to address and document.

All of these rooms are equipped with two pan-tilt-zoom cameras as well as microphones and speakers. This AV system is managed by three control stations where students and faculty can review student performance and interventions. A video tour is provided at the following link <http://csclv.nevada.edu/csclv/index.cfm/facilities/standardized-patient-program-labs/>.

## REHABILITATION SCIENCES

### Gait and Balance Lab

Designed primarily for gait, posture, and balance assessments, the Gait and Balance Lab is equipped with computerized dynamic posturograph, activity monitoring devices, infrared motion detection equipment, and a pressure sensitive gait mat for gait assessment.

### Diagnostics Lab

The Diagnostics Lab contains much of the program's diagnostic testing equipment, such as handheld dynamometers, pain pressure algometers, goniometers, and blood lactate chemistry analyzers, as well as a Biosound Esaote MyLab25 Gold unit diagnostic ultrasound with a variable 2.5 to 6.6 MHz, 60 mm curvilinear array that can assess soft tissue up to 9 cm in depth.

### Pediatrics Lab

The Pediatrics Lab contains assessment equipment for pediatric motor development as well as treatment equipment for clinical studies, including a pediatric treadmill with an over treadmill portable de-weighting harness system, and portable motion detection accelerometers.

## HEALTH PHYSICS

### Spectroscopy Laboratory

This laboratory contains three high-purity germanium gamma ray detection systems and a 16-channel alpha spectroscopy system. The gamma spectroscopy systems allow quick and accurate identification and quantification of any gamma ray emitting radionuclides at environmental levels.

### Liquid Scintillation Laboratory

In addition to housing a brand-new low-level alpha/beta discriminating liquid scintillation counter, this laboratory has two Oxford automated gross alpha/beta proportional counters and three gas flow proportional counters. The liquid scintillation counter is particularly useful in determining levels of  $^3\text{H}$ ,  $^{14}\text{C}$ ,  $^{32}\text{P}$ ,  $^{35}\text{S}$ , or  $^{90}\text{Sr}$  in samples in a liquid matrix.

### Environmental Radiochemistry Laboratory

In the Environmental Radiochemistry Laboratory, soil, water, vegetation, and air filter samples are prepared for counting. Special equipment includes cation and anion separation columns, drying ovens, furnaces, various environmental shakers, and radiochemical fume hoods.

### Radiochemistry and Environmental Health Physics Laboratory

This lab, located in the Science, Engineering and Technology Building, contains three hoods—one for radioactive work and two for nonradioactive use. This facility is ideally suited for performing radiochemical separations and analyses.

### Hot Sample Preparation Laboratory

This laboratory contains facilities used to prepare moderately radioactive environmental samples and radioactive standards and tracers.

### Survey Instrument Laboratory

The Survey Instrument Laboratory serves primarily as an undergraduate teaching laboratory. It contains a fume hood designed to handle radioactive samples, miniscaler workstations, and a variety of portable proportional, Geiger-Muller, and scintillation detectors.

#### Tissue Culture Laboratory

This laboratory contains all necessary equipment for tissue culturing, including hoods, incubators, centrifuges, microscopes, refrigerators, and freezers. This lab also contains a number of portable diode lasers, which are used for cancer cell irradiation.

#### Radiography Imaging Laboratories

These labs contain three fully equipped diagnostic x-ray units (two film and one digital), a film processing room, a screen-film mammography unit, and a C-arm.

### KINESIOLOGY AND NUTRITION SCIENCES

#### Biomechanics Laboratory

The Biomechanics Laboratory is housed in the 3000-square-foot Sports Injury Research facility on the UNLV campus. The Biomechanics Laboratory is equipped with a motion capture system, a dual force platform system, a sports radar gun, an electromyography system, telemetry electromyography system, an isokinetic dynamometer, accelerometers, electrogoniometers, a portable instrumented walkway, a portable balance assessment platform, mechanical impact tester, and other instruments.

#### Exercise Physiology Laboratory

The Exercise Physiology Laboratory comprises three rooms that focus on human performance, exercise biochemistry, and body composition. Equipment for evaluating human performance includes a Precore treadmill, Precore elliptical machine, Hammer Strength Iso-lateral High Row machine, Quinton electrocardiogram machine, and AEI Moxus metabolic measurement system. Equipment for exercise biochemistry includes an 96-well microtiter plate reader and Genesys Gamma-1 RIA gamma counter. Equipment used for determining body composition includes an underwater weighing system and Dual-Energy X-ray Absorptiometry (DEXA).

#### Motor Performance and Learning Laboratory

Housed in the Paul McDermott Physical Education Building, the Motor Performance and Learning Lab consists of a testing room, work and meeting space. The lab is equipped with a stabilometer (stability platform), portable force platform, ski simulator, Bassin anticipation timer, reaction time measurement devices, and video camera.

#### Physical Activity Policy Research Laboratory

The Physical Activity Policy Research Lab is located in the McDermott Physical Education Complex, Room 330. Research in this lab focuses on examining physical activity in relation to policy and the environment in a variety of active living domains, including schools, workplaces, community recreation venues, and transportation.

#### Athletic Training Teaching Lab

This teaching lab, located in Bigelow Health Sciences, Room 449, enables athletic training students to practice their skills and provides the tools they will frequently use for the evaluation and treatment of injuries and illnesses, including taping stations, treatment tables, heating/cooling and electrical modalities, injury evaluation tools, injury rehabilitation tools, and emergency management tools. This room is used throughout the Athletic Training and Allied Health Sciences curriculums.

**ii. Additional facilities required: number of assignable square feet, description of space required, special requirements, time sequence assumed for securing required space**

No additional research space is required; however, we anticipate that with the growth of research productivity and funding that will come from this program more research space may be needed in the future. However, this would be the natural trajectory of any academic program that is increasing its research productivity.

**iii. Existing and additional equipment required**

No additional equipment is required.

**K. Student services required – Plans to provide student services, including advisement, to accommodate the program, including its implications for services to the rest of the student body**

The number of students in the program will not necessitate additional services beyond the current infrastructure. The sub-plan program directors will administrate and advise current and prospective students. Existing administrative assistants will provide administrative support.

**L. Consultant Reports – If a consultant was hired to assist in the development of the program, please complete subsections A through C. A copy of the consultant’s final report must be on record at the requesting institution.**

**i. Names, qualifications and affiliations of consultant(s) used**

Not applicable.

**ii. Consultant’s summary comments and recommendations**

Not applicable.

**iii. Summary of proposer's response to consultants**

Not applicable.

**M. Articulation Agreements**

**i. Articulation agreements were successfully completed with the following NSHE institutions. (Attach copies of agreements)**

Not applicable.

**ii. Articulation agreements have not yet been established with the following NSHE institutions. (Indicate status)**

Not applicable.

**iii. Articulation agreements are not applicable for the following institutions. (Indicate reasons)**

Articulation agreements are not required with any NSHE institution as the proposed program is the only one of its kind in the State of Nevada.

**N. Summary Statement**

The goal of this Ph.D. in Interdisciplinary Health Sciences is to create a new generation of healthcare faculty and researchers with a broad perspective of team science that will help improve the health and welfare of the citizens of Nevada and society. Additionally, this program will produce graduates that are better prepared to answer the complex health problems of tomorrow. This program is also an important infrastructural element that will align UNLV with its aspirational peers and will be a critical element in the drive for Tier One status. Moreover, this program can be started with existing

resources that are already allocated to the four programs involved, except for additional graduate assistantships in the first few years of the program.