Program Description
Certificate in Innovation and Implementation Science Offered by the School of Medicine at Indiana University-Purdue University Indianapolis

1. **Characteristics of the Program**
   a. **Campus(es) Offering Program:** IUPUI
   b. **Scope of Delivery (Specific Sites or Statewide):** Midwest
   c. **Mode of Delivery (Classroom, Blended or Online):** Blended
   d. **Other Aspects (Co-ops, Internships, Clinicals, Practica, etc.):** Blended
   e. **Academic Unit(s) Offering Program:** Medical School – Indianapolis

2. **Rationale for the Program**
   a. **Institutional Rationale (Alignment with Institutional Mission and Strengths)**
      - **Why is the institution proposing this program?**

        Sweeping health care reform and complex market forces are transforming the way healthcare is delivered and managed. These trends stress the importance of delivering better quality care at lower costs to create greater value for all consumers served. In order for healthcare systems' to survive in today's environment and excel in the future, clinicians and administrators need to increase their competencies in the area of innovation and implementation science
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        The Certificate in Innovation and Implementation Science provides working professionals with the skill sets needed to deliver the triple aim of better care and better health at lower costs by providing individuals with both theoretical and applied knowledge on how to successfully implement, localize and evaluate evidence-based practices, as well as innovate and invent new models of care and processes when evidence does not exist. The certificate is targeted towards practicing clinicians, nurses, pharmacists, allied health professionals and administrators working in healthcare delivery systems. By completing this certificate, these health care professionals become part of a new healthcare workforce that moves evidence into practice and drives innovation on the front lines of healthcare.

        Graduates of this certificate will be able to lead the discovery and implementation of new cost-effective, patient-centric, and value-based delivery models, as well as the implementation of evidence-based practices into routine care by applying innovation and implementation science concepts into their everyday work environments. This certificate provides working professionals with the leadership and influence skills for becoming an implementation scientist, transformation change agent, and disruptive innovator. To bring maximum value, students with at least two years of relevant healthcare work experience and a Bachelors degree will be admitted into this program. Clinicians and administrators with prior process

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improvement or methodological training (e.g. clinical research, epidemiology) can enhance their knowledge base with new theoretical and applied knowledge.

- **How is it consistent with the mission of the institution?**

  The Certificate in Innovation and Implementation Science is consistent with Indiana University's mission because it will provide healthcare professionals with the skill sets needed to lead, discovery and implement creative solutions for healthcare problems faced in the 21st century. This certificate also fulfills Principle 5, *Excellence in the Health Sciences and Health Care*, in *the Principles of Excellence*, articulated by President McRobbie, which states, "support the highest quality research, clinical care, education, and workforce development in the health sciences by deepening and expanding Indiana University's relationship with IU Health and with the university's other clinical partners, thus contributing to better Hoosier, national, and global health" by training a new breed of scientists and providing healthcare professionals employed by IU Health, Eskenazi Health and the Richard L. Roudebush VA with the skill sets needed to innovate and implement evidence-based practices into routine clinical care.

  This certificate is consistent with IU School of Medicine's mission of, "advancing health in the State of Indiana and beyond by promoting innovation and excellence in education, research and patient care", because graduates will 1) learn the principles of innovation and how to apply these principles to become disruptive innovators in their local healthcare environment (unit, department, service line, hospital, clinic); 2) acquire implementation science skill sets which will allow them to study the systematic uptake of research findings and other evidence-based interventions, and implement these interventions into routine practices to improve the quality and effectiveness of the care that is delivered; and, 3) utilize implementation science to discover generalizable knowledge, scientific methodology, and reproducible approaches and solutions for the challenges we currently face when disseminating, implementing or de-implementing, and scaling up planned and effective changes across multiple health care settings.

  Over the past six months, the Certificate in Innovation and Implementation Science's core planning team, consisting of individuals from the School of Medicine, Nursing, Public Health and Business garnered specific feedback through interviews with administrative and clinical leaders at IU Health, Eskenazi Health, Richard L. Roudebush VA, IU School of Medicine, Regenstrief Institute, and the Indiana Clinical and Translational Sciences Institute (CTSI). During these interview sessions, stakeholders provided insights on how they define innovation and implementation science and why these concepts are important for surviving in today's challenging environment. These visionary leaders also provided

information on program target markets, existing organizational barriers that impede implementation success, their desired future state, essential knowledge domains and skill sets that would add value to their workforce if acquired. Almost all of the visionary leaders identified the curriculum delivery model (i.e. online, blended, face-to-face) as critical to engaging practicing clinicians in the certificate program. Across all of the structured interviews, stakeholders recognized the urgency in training and developing this new workforce, and identified several critical innovation and implementation science concepts that healthcare professionals would need to master to be successful in transforming our current systems into high value learning systems.

Due to IU School of Medicine's rich history and investment in health services research and translational sciences, it makes them uniquely qualified to deliver this certificate because the School of Medicine can use the wisdom of faculty members that have created and delivered an educational curriculum in health services research and education, as well as clinical translational sciences, specifically the faculty members that taught the Topics in Translational and Implementation Research (G610), to further its quest in accelerating the rate in which research is moved from the bench to the bedside through the addition of innovation and implementation science education.

3. **How does this program fit into the institution's strategic and/or academic plan?**
   a. **How does this program build upon the strengths of the institution?**

   Appendix 1: Institutional Rationale, Detail (This appendix contains IU School of Medicine's strategic research plan titled, *Transforming Research Initiative (TRI)*)

   This certificate is perfectly aligned with the School of Medicine's strategic research plan because the certificate stems from one of the School of Medicine's 2014 goals of establishing Cores/Centers/Institutes that are strategically aligned with the TRI-developed research themes, one being **Health Services Research**, which led to the creation and designation of the Center for Health Innovation and Implementation Science (CHIIS). The CHIIS was created in September of 2013 and is focused on delivering the following objectives:

   1. Create a network of leaders who will support the exchange of information and ideas among diverse, autonomous, and collaborative individuals across IUPUI, IU Health, IU Health Clinicians, Eskenazi, Regenstrief Institute, and the Richard L. Roudebush VA Medical Center.
   2. Establish a rapid cycle Research & Discovery Unit (RDU) in each of the health care organization partners. The RDU is an interdisciplinary team of clinicians, administrators, educators, and implementation scientists, who will rapidly assess, implement, evaluate, and disseminate effective, innovative health care solutions.

3. Develop, evaluate, implement, and disseminate innovative health care solutions that deliver high-quality, safe, and cost-effective care.
4. Foster sustainability of the CHIIS by training and mentoring healthcare providers, researchers, and health care system managers and leaders through the Certificate in Innovation and Implementation Science's Practicum Course I and II; securing intellectual properties of discovered solutions; and integrating the CHIIS's activities into the fabric of the health care delivery organization partners.

To build upon the strengths of the CHIIS, the certificate will leverage the expertise housed within CHIIS which consists of biostatistics, health economics, operations management, project and team management, industrial engineering, implementation science and innovation experts to deliver the theoretical knowledge and practical elements required to create effective healthcare catalysts that will be capable of delivering, sustaining and constantly improving the triple aim in the healthcare systems in which they work in, and become implementation scientists and disruptive innovators.

Two additional TRI goals, team science and mentoring, aligns with our program's focus because team science supports the multidisciplinary cohort learning approach that will be used to educate students, and since we strongly believe mentoring is a key component that will drive the success of our students, we have developed two practicum courses that heavily intertwines the mentoring approach developed by the CHIIS. The CHIIS' effective mentoring approach centers around three basic requirements: (1) weekly one-hour meeting with the primary mentor, (2) weekly leadership support group with other mentees in the class, and (3) monthly one-hour meeting with the mentorship panel. The primary mentor will be a faculty member from the CHIIS, and the mentorship panel will be composed of the primary mentor, a content expert mentor from the same field of expertise as the mentee (student) and a biostatistics expert mentor.

b. State Rationale
- **How does this program address state priorities as reflected in Reaching Higher, Achieving More?**

This program addresses the following state priorities:
- Student-Driven
  Our planning committee conducted interviews with healthcare professionals and leaders of IU Health, Eskenazi Health, Richard L. Roudebush VA, IU School of Medicine, Indiana CTSI and Regenstrief Institute during the early stages of our team formation and development. We utilized the feedback received during these critical interviews to guide the development of our curriculum and project to provide maximum student-value for a working healthcare professional.
- Workforce-Aligned

Based on the feedback we received from our interviews, national grant funding trends, as well as workforce trends, it is clear that there is a potential high demand for practicing healthcare professionals with innovation and implementation science knowledge and skills..   Innovation and Implementation Scientists are crucial knowledge workers who have the skills to lead our nation's transformation into a value-based healthcare. These healthcare professionals are likely to continue working in their professional areas of expertise and a significant amount of their time and effort devoted to innovation and implementation in their respective organizations.

- Degree Production
  The state of Indiana would like to double the number of college degrees and certificates produced currently by 2025, which will require increasing our annual degree production from approximately 60,000 to 120,000 degrees. After deployment of the Certificate in Innovation and Implementation Science, our team will work on creating a Master and PhD in Innovation and Implementation Science, which aligns with the state's goal of increasing the number of degrees offered.

- Improving Lives Through Innovative Investments
  The development of this certificate stems from the CHIIS, which fosters the discovery of novel health care solutions via multidisciplinary team collaboration, creating an environment that encourages free thought and innovation to develop products that will bring evidence-based research to market, and provide a large economic potential through the creation of intellectual property and start-ups.

- Innovation Delivery and Model
  Since there is potential high demand for training in innovation and implementation science, we plan to use a cohort-based blended delivery approach that caters to working professionals with full-time employment in the health care industry. The certificate curriculum will be delivered through two-day in residence sessions once a month completed by online instruction and virtual mentoring technologies. This delivery structure utilizes smarter pathways and deploys more effective learning structures to help busy healthcare professionals meet their professional goals as well as complete their degrees in an area with high-value and high-growth potential.

c. **Evidence of Labor Market Need**
- **National, State, or Regional Need**
  Is this program serving a national state, or regional labor market need?

  Because innovation and implementation science are emerging as critical health care capabilities, the certificate labor market need was established through extensive structured interviews of healthcare leaders and visionaries. According to this industry feedback, the Certificate in Innovation and Implementation Science will fill the rapidly increasing need for healthcare professionals who understand that healthcare is a complex adaptive system, and how to lead changes, innovate and implement evidence-based practices in a system with semiautonomous,

competing and collaborating individuals who interact and coevolve in nonlinear ways with their surrounding environments. Healthcare professionals are being asked daily to improve the value they deliver to patients, while providing cost savings to the healthcare system. In order for healthcare professionals to be successful at delivering what is requested of them, they need to have a thorough understanding of innovation and implementation science fundamentals such as health services research, the reflective adaptive process, leading system and team level change, evaluation mechanisms and economic and financial thinking. These healthcare professionals are currently leading clinical units and departments, or working in the trenches and are trying the best that they can with the tools and knowledge that they have acquired throughout the years to implement changes.

This need is seen across the nation as a growing number of clinicians are seeking training in innovation and implementation science as they further their clinical practice and/or research duties because the education that they have received in their clinical programs have not given them the exposure to nor provide them with the knowledge in areas like population health management, epidemiology, biostatistics or quality improvement, which are essential for understanding the barriers in the systematic uptake of evidence-based practices into routine care. An article published by the Association of American Medical Colleges (AAMC) in April of 2013 highlighted the fact that a growing number of clinicians are seeking training in implementation science. Reason being is because as their research career has evolved, they have wanted to be more involved in the act of taking practices that has good evidence behind them and implementing them, as well as understanding why evidence is currently not being adopted into routine health settings. "The implementation science track was really important to my work because it's about how you can make things work in the real world – how you can take something from a proven idea into practice." This is one quote from a physician in the article, which echoes the perspectives of many others (Uscher, 2013). The National Institute for Health (NIH)/Veteran Administration (VA) summer Training Institute on Dissemination Implementation Research in Health (TIDIRH) has also had between 5 and 10 times more applicants because of the recent upsurge and interest in this. This data was reported in August of 2013 by the NIH.

- **Preparation for Graduate Programs or Other Benefits**
  Does the program prepare students for graduate programs or provide other benefits to students besides preparation for entry into the labor market?

  The Graduate Certificate in Innovation and Implementation Science targets working health care professionals with several years of relevant work experience. As such the certificate does not prepare them for entry into the labor market. Having said that the certificate does enhance their ability to advance in their profession and accept new projects in their organizations. The multi-disciplinary

nature of the fields of innovation and implementation science provides the opportunity for the working professional student to consider additional graduate-level training in areas of healthcare.

Current plans are underway to develop a Master or PhD in Innovation and Implementation Science. These emerging graduate degree programs are being designed to accept graduate credit from this certificate.

- **Summary of Indiana DWD and/or U.S. Department of Labor Data**
Summarize the evidence of labor market demand for graduates of the program as gleaned from employment projections made by the Indiana Department of Workforce Development and/or the U.S. Department of Labor?

  According to the U.S. Department of Labor, employment across the continuum of healthcare services has been and will continue to experience job growth far above average. When combined with the expected increase in patient volume due to health care reform and the aging of the baby-boomer generation, the future outlook for the Certificate in Innovation and Implementation Science is overwhelmingly positive. According to the U.S. Bureau of Labor Statistics, healthcare support occupations and healthcare practitioners and technical occupations have a 28.1% and 21.5% projected rate of growth, respectively, while the 30 occupations projected to have the largest percentage increase include 14 related to healthcare. This establishes demand for this certificate since the expertise of these clinical roles coupled with the foundational principles of innovation and implementation science will be of the utmost value to the healthcare industry. Additionally, the National Institutes of Health (NIH) declare training and mentoring a new generation of researchers capable of improving methods to disseminate research-based findings as one of the keys to remedying our current segregated healthcare system. The NIH cites that the innovative field of implementation science recognizes and addresses the multitude of gaps that impede evidence-based interventions from producing optimal health outcomes. The Center for Medicare and Medicaid Innovation (CMMI) will spend up to $1 billion for awards and evaluation of projects from across the country that test new payment and service delivery models that will deliver better care and lower costs for Medicare, Medicaid, and Children's Health Insurance Program enrollees. The expected job outlook for health care professionals from 2010-2020 is significantly higher than the average, according to the U.S. Department of Labor, including 26% for Registered Nurses, 30% for Clinicians Assistants, 25% for Pharmacists, 39% for Physical Therapists, and 30.5% overall. Employment data on healthcare management positions are not available through government sources but are presumed positive as a result of the current aging/retiring workforce of healthcare administrators and clinical managers.

- **National, State, or Regional Studies**

Summarize any national, state, or regional studies that address the labor market need for the program.

Implementation Science is an emerging field that is gaining increasing interest because it has proven the value that can be added if healthcare professionals are equipped to apply these principles into their work environments. National data from the NIH/VA addresses the labor market need for this program in its summer Training Institute on Dissemination Implementation Research in Health (TIDIRH), in which they had between 5 and 10 times more applicants because of the recent upsurge and interest in this. This data was reported in August of 2013 by the NIH.

- **Surveys of Employers or Students and Analyses of Job Postings**
  Summarize the results of any surveys of employers or students and analyses of job postings relevant to the program.

The Certificate in Innovation and Implementation Science will develop a new healthcare workforce that builds upon existing clinical and administrative skill sets, healthcare knowledge, and experiences to become effective catalysts, disruptive innovators and leaders that are capable of transforming our current healthcare systems into learning systems to deliver greater value, and better care at lower costs. Since innovation implementation science is an multi-disciplinary emerging field, interviews were conducted with key stakeholders at organizations that would potentially supply prospective students to ensure the target audience, curriculum and delivery methods proposed meets the workforce gap that many leaders have voiced they are in need of today. Led by a multi-disciplinary research team sponsored by the Center for Innovation and Implementation Science, these interviews provided specific feedback on 1) how they define innovation, implementation science, and a learning healthcare system, 2) where implementation science fits within the spectrum of research to practice, 3) program target market, 4) existing barriers that have contributed to the lack of implementation of evidence-based practices into routine care, 5) individuals they envisioned would serve as implementation scientists within their organizations and how this role would integrated with existing healthcare professionals that work within the system today, 6) the knowledge domains and skill areas that would be most relevant to understand and practice, and 7) program delivery. All stakeholders were encouraged to provide constructive feedback and were assured that all information gathered from the interviews would be kept confidential. The chart below summarizes the stakeholders our team interviewed.

Organization	Position	Leader
IU School of Medicine	Executive Associate Dean for Research Affairs	David Wilkes, MD
Indiana CTSI	Director	Anantha Shekhar, MD, PhD

Regenstrief Institute	President and CEO	Bill Tierney, MD
IU Health	Chief Medical Officer	John Kohne, MD
IU Health	Chief Operating Officer	Dennis Murphy
IU Health	Chief Innovation and Implementation Officer	Malaz Boustani, MD
IU Health	Chief of Staff	Steve Wantz
IU Health Methodist Hospital	Chief Nursing Officer	Linda Chase, PhD
IU Health Arnett Hospital	Chief Executive Officer	Al Gatmaitan
Eskenazi Health	Chief Nursing Officer	Lee Ann Blue
Eskenazi Health	Chief Operating Officer	Parveen Chand
Richard L. Roudebush VA	Chief Innovation and Implementation Officer	Mike Weiner, MD

Stakeholder Feedback on the Certificate in Innovation and Implementation Science

The move from a fee-for-service reimbursement structure to a value-based payment system has necessitated the adoption of new principles and skill sets to deliver the triple aim of better care and better health at lower costs. This section summarizes stakeholder feedback related to the area of innovation and implementation science and its role in supporting their organization in its transformative journey to deliver greater value and prosper in the future.

The Value of Innovation and Implementation Science

- o It makes things faster, cheaper and better.
- o It helps organizations think differently about how to solve problems and facilitate discussions.
- o It is evolving the thought process of strategically institutionalizing continuous process improvement for complex adaptive systems.
- o It helps organizations evolve into learning leaders who can adapt, implement and continuously update their work designs because the environment is so dynamic.
- o It customizes evidence into the needs and culture of the local environment to increase implementation and dissemination success.
- o It shortens the cycle time when a hypothesis is mad to the utilization of that hypothesis.
- o It helps healthcare systems survive and adopt.

The Market Need
- o Stakeholders unanimously agreed that there is an immediate and long-term need for implementation scientists, and the certificate is a good starting

point because it can provide the essential training needed for a busy workforce.

- o Stakeholders expressed interest in having certain individuals pursue a Master or PhD in Innovation and Implementation Science, and that these individuals would be strategically placed in key operational areas of the organization.

Key Knowledge Domains

- o Stakeholders expressed that it is critical that individuals understand and can apply the following knowledge areas:
  - System thinking, which consists of understanding complex adaptive systems, as well as macro and micro delivery systems
  - Leading system and team level change
  - Health services research
  - Evaluation, which consists of economic and financial thinking, patient-centered outcomes and statistical methods

Critical Success Factors

- o Program should utilize the blended delivery method due to the pressing need of training existing working healthcare professionals in these concepts.
- o Individuals should receive training in multidisciplinary cohorts to accelerate their ability and comfort in leading change with individuals from diverse backgrounds with various skill sets.
- o Certificate students need to have at least two years of healthcare experience to make the certificate a meaningful learning experience.
- o Healthcare professional learn best when they are given the opportunity to apply their learnings in real-world environments via practicums.

- **Letters of Support**
  Summarize, by source, the letters received in support of the program:

  Letters of Support will be received by the following sources:
  - o IU School of Medicine
  - o IU School of Public Health
  - o IU School of Nursing
  - o Regenstrief Institute
  - o Indiana CTSI
  - o IU Health
  - o Eskenazi Health
  - o Richard L. Roudebush VA

4. **Similar and Related Programs**
   a. **List of Programs and Degrees Conferred**
   - **Similar Programs at Other Institutions**

University of California San Francisco and Ohio State University are the only institutions that offer a certificate or degree program in Implementation Science. University of California San Francisco offers both a Certificate and Master program, and Ohio State University offers a PhD in Implementation Science. Tufts University's Clinical and Translational Science Graduate Program and Dartmouth offers students some training in dissemination and implementation research, respectively through a concentration in Evidence-Based Clinical Effectiveness Research at both the Master of Science and PhD levels and the Master of Health Care Delivery Science, and the University of North Carolina at Chapel Hill offers a non-graduate credit certificate in Implementation and Scaling-up of Evidence-Based Practices. Harvard has also just announced a 2014 Training Institute for Dissemination and Implementation Research in Health that will be held July 21-25, 2014.

Campuses offering (on-campus or distance education) programs that are similar:

There are no existing programs at Indiana University that are similar to the Certificate in Innovation and Implementation Science.

b. **Related Programs at the Proposing Institution**

Currently, there are no related programs at Indiana University.

c. **List of Similar Programs Outside Indiana**

University of California San Francisco and Ohio State University are the only institutions that offer a certificate or degree program in Implementation Science. University of California San Francisco offers both a Certificate and Master program, and Ohio State University offers a PhD in Implementation Science. Tufts University's Clinical and Translational Science Graduate Program and Dartmouth offers students some training in dissemination and implementation research, respectively through a concentration in Evidence-Based Clinical Effectiveness Research at both the Master of Science and PhD levels and the Master of Health Care Delivery Science, and the University of North Carolina at Chapel Hill offers a non-graduate credit certificate in Implementation and Scaling-up of Evidence-Based Practices. Harvard has also just announced a 2014 Training Institute for Dissemination and Implementation Research in Health that will be held July 21-25, 2014.

d. **Articulation of Associate/Baccalaureate Programs**
   N/A

e. **Collaboration with Similar or Related Programs on Other Campuses**

- **Indicate any collaborative arrangements in place to support the program.**

Our team has been working with the School of Public Health, Nursing and Business to create an arrangement where our courses can be offered as electives in other degree programs within each of these schools.

5. **Quality and Other Aspects of the Program**

The Graduate Certificate in Innovation and Implementation Science will be delivered as a blended program with weekend residencies and online instruction. Health care professionals will attend residency sessions approximately one weekend per month. This program does not consist of any online courses, instead each course is conducted as a hybrid course offering. This blended delivery structure would result in approximately 50% face-to-face classroom instruction and 50% online educational experiences.

Due to the blended program delivery, the potential student population would consist of working health care professionals in the state of Indiana and the greater Midwestern region. Having health care professionals from different Midwestern states would increase the cohort diversity as different geographical regions tend to have different competitive factors and different medical practice patterns.

This certificate program will also utilize the Framework for Training Health Professionals in Implementation and Dissemination Science. This framework focuses on three principles, 1) behavior change among organizations and/or individuals (providers, patients) is inherent in the translation process; 2) engagement of stakeholder organizations, health care delivery systems and individuals are imperative to achieve effective translation and sustained improvements; and 3) implementation and dissemination research is iterative, benefiting from cycles and collaborative, bidirectional relationships. In addition to the Framework for Training Health Professionals in Implementation and Dissemination Science, we will also utilize competencies from interdisciplinary research because we believe that creating strong interdisciplinary teams will increase the likelihood of success in innovating and implementing evidence within health care. The interdisciplinary research competencies include, 1) use of theories and methods from multiple disciplines in developing integrated theoretical and research frameworks; 2) integrate concepts and methods from multiple disciplines in designing interdisciplinary research protocols; 3) investigate hypotheses through interdisciplinary research; 4) draft funding proposals for interdisciplinary research programs; 5) disseminate interdisciplinary research results within and outside the discipline; 6) author publications with scholars from other disciplines; and 7) present interdisciplinary research at venues representing more than one discipline. (Gonzales, Handley, Ackerman, & O'Sullivan, 2012)

a. **Credit Hours Required/Time To Completion**

- **Credit hours required for the program and how long a full-time student will need to complete the program**

Our certificate will consist of 15 credit hours and will take one year for a part-time student to complete. The certificate duration cannot be accelerated for full-time students due to the cohort, lock-step nature of the program. However, the certificate does have the flexibility to allow students to graduate in 9 to 12 months by accelerating completion of their practicum in 3 rather than 6 months. Students must complete the certificate within two years from their admission date. If work or personal conflicts occur during the certificate program the students may re-enter the program during the next cohort and will receive credit for the previous completed coursework.

- **Credit Hours Required/Time To Completion, Detail (This should contain the semester-by-semester, course-level detail on the program curriculum, including how long it will take to complete the program, assuming full-time study.)**

The certificate will be taught in a cohort, lock-step structure. All students complete the same courses in the same sequence on a quarter schedule.   This integrative curriculum structure allows faculty to coordinate their topics, assignments, and learning experiences between quarters and across quarters.

All students must successfully complete an online statistics tutorial before beginning their formal course work. This prerequisite can be waived based on either (1) recent completion of a statistics course or (2) employment in a research/data intensive position.

Fall Quarter

- **GRAD-G673 Innovation and Implementation Science I (3.0 credit hours)**

- **GRAD-G674 Health Outcomes and Evaluation in Implementation Science (1.5 credit hours)**

Winter Quarter

- **GRAD-G676 Innovation and Implementation Science II (3.0 credit hours)**

- **GRAD-G677 Leading Change, Teams, and Projects (1.5 credit hours)**

- **GRAD-G678 Practicum in Innovation and Implementation Science I (3.0 credit hours)**

Summer Quarter

- **GRAD-G679 Practicum in Innovation and Implementation Science II (3.0 credit hours)**

b. **Exceeding the Standard Expectation of Credit Hours**

• **If the associate or baccalaureate degree program exceeds 60 or 120 semester credit hours, respectively, summarize the reason for exceeding this standard expectation.**

N/A

Appendix 11: Exceeding the Standard Expectation of Credit Hours, Detail (This appendix should contain detailed information on why it is necessary to exceed the standard credit hour expectation, such as links to relevant licensure and/or accreditation standards the standards themselves.)

c. **Program Competencies or Learning Outcomes**

• **List the significant competencies or learning outcomes that students completing this program are expected to master.**

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Certificate in Innovation and Implementation Science (IIS)
Learning Goals

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1. **Innovation and Implementation Knowledge and Application**
   Graduates of the Certificate in IIS will demonstrate deep knowledge of the theories and phases of innovation and implementation science and the ability to apply them to diverse health care settings.

2. **Research Methods and Evaluation**
   Graduates of the Certificate in IIS will be able to recognize and apply appropriate research methods, measurement systems, and program evaluation methods based on the specific needs of a local health care setting.

3. **Integration and Planning**
   Graduates of the Certificate in IIS will be able to integrate innovation and implementation theories and methods into a comprehensive strategy and detailed project plan.

4. **Scalable Design and Outcomes**
   Graduates of the Certificate in IIS will be able to design a scalable intervention that results in better care, lower costs, and better patient-centered outcomes.

5. **Leadership and Effective Change Management**
   Graduates of the Certificate in IIS will be able to lead and manage a new health care intervention using leadership, team and project management skills.

6. **Adaptation, Sustainability and Continuous Improvement**
   Graduates of the Certificate in IIS will be able to monitor, adapt, sustain, and improve the intervention over time.

7. **Communication and Professional Skills**
   Graduates of the Certificate of IIS will demonstrate effective oral, written, and visual communication skills and be able to undertake reflective self-assessment leading to an actionable plan for professional development.

d. **Assessment**

- **Summarize how the institution intends to assess students with respect to mastery of program competencies or learning outcomes.**

Approximately one month before the start of the Graduate Certificate in Innovation and Implementation Science, practicing health care professionals will be asked to complete a skill assessment survey related to the program learning goals. This skill assessment will be designed as a competency-based instrument that will be re-administered at the end of the certificate program.

The following program goals will be accessed in the specific courses below.

Certificate Learning Goals	Course Evaluation
1. Demonstrate mastery of the theories and phases of innovation and implementation science and the ability to apply them to diverse health care	• Innovation & Implementation Science I

2. Recognize and apply appropriate research methods, measurement systems, and program evaluation methods based on the specific needs of a local health care setting.	• Implementation Research Methods and Evaluation
3. Ability to integrate innovation and implementation theories and methods into a comprehensive implementation strategy and detailed project plan.	• Innovation and Implementation Science I and II • Leading Change, Teams, and Projects
4. Ability to design a scalable intervention that results in better care, lower costs, and better patient-centered outcomes.	• Practicum
5. Ability to lead and manage a new health care intervention using leadership, change management, and project management skills.	• Leading Change, Teams, and Projects • Practicum
6. Ability to monitor the innovation and implementation intervention and modify strategies and plan as appropriate.	• Innovation and Implementation Science II
7. Identify and competently evaluate and manage sustaining, extending, and improving the intervention.	• Innovation and Implementation Science II • Practicum

In each course, the program learning goals will be broken down into smaller, more measurable course-specific learning outcomes that will be assessed through assignments, projects, and examinations. Upon completion of the final term, the skill assessment survey will be completed along additional questions exploring the effectiveness of different learning pedagogies.

Six months after graduation from the certificate program, a student satisfaction survey will be distributed to alumni with questions addressing how the specific skills and knowledge have been applied in their practices.

e. Licensure and Certification

Graduates of this program will be prepared to earn the following:

- **State License:** N/A

- **National Professional Certifications (including the bodies issuing the certification):** N/A

Certificate students will have the opportunity to earn continuing professional education credit for their successful course completion. We plan to work with National Professional Associations to ensure that our students receive continuing professional education credit such as Continuing Medical Education credit for clinicians.

- **Third-Party Industry Certifications (including the bodies issuing the certification):** N/A

f.   **Placement of Graduates**

- **Please describe the principle occupations and industries, in which the majority of graduates are expected to find employment.**

Based on feedback from the interviews conducted, the majority of graduates will continue employment with their current employer as implementation scientists who will act as transformational change agents, thought leaders and disruptive innovators. This certificate provides the competencies needed to localize and implement high-value, cost-effective, evidence-based clinical practices into routine healthcare practices, which will also include the de-implementation of current ineffective methods.

- **If the program is primarily a feeder for graduate programs, please describe the principle kinds of graduate programs, in which the majority of graduates are expected to be admitted.**

Graduates can be expected to be admitted into the Master or PhD in Innovation and Implementation Science.

g.   **Accreditation**

- **Accrediting body from which accreditation will be sought and the timetable for achieving accreditation.**

No separate accreditation for this program will be sought.

- **Reason for seeking accreditation.**

N/A