Implementation Form – Graduate / Professional Certificates

This form must accompany a certificate proposal. It is used by administrative offices to better assist departments and programs with implementation.

Name of Graduate / Professional Certificate: **Graduate Certificate in Patient Safety**
Faculty Program Director: **Professor Pascale Carayon**
Primary Faculty/Staff Contact: **Pam Peterson, Student Services Office**
Home Department/Academic Unit (Name/UDDS): **Industrial and Systems Engineering / A1950**
Approval Date:
School/College: **College of Engineering**
Approval Date:
GFEC Approval Date: **2004-2005**
UAPC Approval Date:
Implementation Term (typically the fall term after UAPC approval): **1064 (Spring 2006)**
Year that first program review is scheduled (usually 5 years after implementation):

Plan Code (assigned by the Registrar’s Office): **GCRT620**
Plan Descr (assigned by the Registrar’s Office): **Certificate in Patient Safety**
CIP Code (assigned by Academic Planning and Analysis): **140501**
Primary Divisional Disciplinary Assignment (assigned by APA for analysis purposes only): **PHY**

Curriculum:
- X Included in detail in the proposal
- X A list of required and elective courses is attached

Credit total required (should be between 9 and 12): **12 mandatory in curriculum/3 elective**
Credits required to be taken in residence at UW-Madison (must be at least 50%): **All**
Confirm that all core/required courses are approved through Divisional Committee: **Yes**
Confirm that courses in curriculum are offered on a regular basis and have space for students in this program: **Yes**

Projected enrollment: **Varies**

What provisions have you made in the admissions process to gain consent from students’ degree/major program(s) to participate in the certificate program?
The certificate program was designed by a group of faculty representing the following departments: Industrial and Systems Engineering, Population Health Sciences, Medical Physics, and the School of Pharmacy. These faculty regularly have information about the Patient Safety Certificate within their respective units.
Confirm that all courses numbered 300 or above  

Yes

Confirm that courses taken as pass/fail or audit are not allowed  

Yes

Confirm that special topics courses are only used if all instances count for the certificate:  

Yes

Will you use the typical minimum GPA requirement of 3.0 for all course work for the certificate?  

Yes

If no, specify other requirements:  

Are courses taken Credit/No Credit allowed?  

If yes, specify limits:  

No

Will exceptions to requirements be allowed?  

If yes, specify limits and process:  

Limited exceptions are allowed as approved by the Patient Safety Certificate advisor.

The department/program has a process in place to monitor student progress and to notify the Registrar’s Office when students complete the certificate requirements  

Yes

Program faculty and staff understand that a student’s graduation should not be delayed to complete the certificate.  

Yes  

No

Specify overlap provisions – name degree/major or certificate programs that may not be earned along with the certificate. Note that majors take priority over certificates. (Students may not earn a graduate certificate if they are also earning a post-baccalaureate major/degree or PhD minor with the same name.)  

None

Assessment plan – confirm that the proposal includes a plan that describes how the faculty will regularly evaluate student learning.  

Yes  

No
Prerequisites and Completion Requirements

Student Responsibilities

Faculty Advisors

Curriculum

Elective Courses

Objectives

To increase student knowledge about how systems engineering and systems design can be used to identify, analyze and solve patient safety research and applied problems.

Background:

It has been estimated that at least 98,000 US adults die each year from medical errors; fewer people die from breast cancer, AIDS or auto accidents. The costs associated with preventable medical errors exceed $17 billion. To help train scientists and practitioners to effectively reduce the likelihood of preventable patient harm, the University of Wisconsin-Madison is offering this Graduate Certificate in Patient Safety. The Certificate is supported by the School of Medicine and Public Health, School of Nursing, School of Pharmacy, and College of Engineering.

For more information on the program, please download the curriculum document or use the links to the left.
Prerequisites and Exit Requirements

Prerequisites

1. Accepted into a graduate or professional degree program
2. Full- or part-time graduate student status
3. One of the following three:
   - A degree in a health-care-related field (that is, nursing, medicine, pharmacy, population health, public health, health care administration, health systems management, health care management), or
   - Work experience in health care delivery, or
   - Have taken a course in health care delivery such as Health Systems Engineering (IE 417), Health Care Systems (Nursing 105), Health Systems and Health Care Delivery (Law 940), or Introduction to Health Services Research (Population Health 796).

The reason for the three options for prerequisites is to allow people with and without health care backgrounds to obtain the certificate.

Exit Requirements:

- GPA of 3.2 or above for the Patient Safety Certificate Curriculum courses (mandatory and elective combined).
- Completion of all mandatory and elective courses.
Home : Current Students :

Student Responsibilities

1. Complete the Patient Safety Certificate Declaration Form and have it signed by an approved advisor. Take the form to Staci Rubenzer in 3182 Mechanical Engineering.

2. Complete the courses required for the Patient Safety Certificate. If you have any questions, please contact Staci Rubenzer.

3. The semester you plan to graduate, complete the Patient Safety Certificate Completion Form and obtain your advisor’s signature. Take the form to Staci Rubenzer in 3182 Mechanical Engineering. She will notify that Registrar’s Office that you have fulfilled the requirements.
Advisors

- Students must choose one of the core faculty members as an advisor.
- The advisor will determine if a student has met the pre-requisite requirement.
- Advisors must sign the section of the curriculum form titled "Patient Safety Certificate Application and Completion" in order for students to enroll.
- When students have completed the Certificate curriculum, advisors will sign off on the Patient Safety Certificate Application and Completion form.

**Potential Advisors:**

<table>
<thead>
<tr>
<th>Name</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patricia Brennan</td>
<td>School of Nursing, Industrial &amp; Systems Engineering</td>
</tr>
<tr>
<td>Pascale Carayon</td>
<td>Industrial &amp; Systems Engineering</td>
</tr>
<tr>
<td>Michelle Chui</td>
<td>Pharmacy</td>
</tr>
<tr>
<td>Ben-Tzion Karsh</td>
<td>Industrial &amp; Systems Engineering</td>
</tr>
<tr>
<td>Enid Montague</td>
<td>Industrial &amp; Systems Engineering</td>
</tr>
<tr>
<td>David Mott</td>
<td>Pharmacy</td>
</tr>
<tr>
<td>Mary Ellen Murray</td>
<td>School of Nursing</td>
</tr>
<tr>
<td>Maureen Smith</td>
<td>Population Health Sciences</td>
</tr>
<tr>
<td>Bruce Thomadsen</td>
<td>Medical Physics</td>
</tr>
<tr>
<td>Doug Wiegmann</td>
<td>Industrial &amp; Systems Engineering</td>
</tr>
<tr>
<td>David Zimmerman</td>
<td>Industrial &amp; Systems Engineering</td>
</tr>
</tbody>
</table>

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Date last modified: 02-Feb-2010 15:17:04
Date created: 01-Dec-2006
Content by: le@engr.wisc.edu

Accessiblity

Web services
### Mandatory Certificate Courses

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>ISyE 961: Patient Safety Research Seminar</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Equivalent of a 1-credit Patient Safety Project. To meet this requirement, students will be expected to work on an actual patient safety project with a health care delivery organization (in patient, out-patient, long-term care, home care, etc.) in which they will be involved in the design, measurement analysis, implementation and/or evaluation of a patient safety project. All students who complete requirement #3 below will automatically meet this requirement.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Pharmacy 608: Safety and Quality in the Medication Use System</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Medical Physics/ ISyE 559: Patient Safety Risk Assessment</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Population Health Sciences/ISyE 703: Quality of Health Care</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>One of the following:</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>a) ISyE 555: Accident Causation and Analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) ISyE 652: Sociotechnical Systems</td>
<td></td>
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<tr>
<td></td>
<td>c) ISyE 653: Job and Organizational Design</td>
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</tr>
</tbody>
</table>

**Total Mandatory**  
12 credits

**Elective Certificate Courses (minimum 3 credits)**  
3 credits

**GRAND TOTAL**  
15 credits

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Thank you for visiting!
Home : Current Students : Patient Safety :

Elective Courses

History of Medicine

HM 545 Ethical and Regulatory Issues in Clinical Investigation

Industrial and Systems Engineering

ISyE 515 Engineering Management
ISyE 549 Advanced Human Factors Engineering
ISyE 555 Human Performance and Accident Causation
ISyE 556 Occupational Safety and Health
ISyE 575 Introduction to Quality Engineering
ISyE 616 Planning Large-Scale Complex Systems
ISyE 617 Health Information Systems
ISyE 652 Sociotechnical Systems
ISyE 653 Organization and Job Design
ISyE 691 Introduction to Health Systems Engineering
ISyE 691 Technology Implementation
ISyE 854 Human Error
ISyE 859 Seminar on Human Factors and Patient Safety

Law School

Law 854 Center for Patient Partnerships

Nursing

Nursing 415 Organizational Influences on Interdisciplinary Practice
Nursing 761 Health Program Planning, Evaluation and Quality Improvement
Nursing 802 Ethics and the Responsible Conduct of Research

Population Health Sciences
Elective Courses

PHS 548  Economics of Health Care
PHS 719  Seminar - Contemporary Issues in Health Care
PHS 796  Introduction to Health Services Research
PHS 797  Strategy and Methods in Epidemiology
PHS 798  Epidemiologic Methodology
PHS 800  Quantitative Methods in Population Health I
PHS 802  Epidemiology of Chronic Diseases
PHS 803  Monitoring Population Health
PHS 875  Assessment of Medical Technologies

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Thank you for visiting!
PATIENT SAFETY CERTIFICATE DECLARATION FORM

Please complete the tentative study plan (on back of form) and have this form signed by one of the Patient Safety Certificate advisors. Once this form is completed, please turn in the original form to Annie Duchek, Graduate Coordinator of Industrial & Systems Engineering, in 3182 Mechanical Engineering. If you have any questions about the certificate, please contact Annie at (608) 890-2765 or amduchek@engr.wisc.edu.

<table>
<thead>
<tr>
<th>Student Name:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campus ID:</td>
</tr>
<tr>
<td>E-mail Address:</td>
</tr>
<tr>
<td>Academic Program:</td>
</tr>
<tr>
<td>Certificate Advisor:</td>
</tr>
<tr>
<td>Expected Graduation Term:</td>
</tr>
</tbody>
</table>

I affirm that I meet all the pre-requisites required to apply for the Patient Safety Certificate, including:

- □ Accepted into a graduate or professional degree program
- □ Full or part-time graduate student status
- □ One of the following:
  - □ A degree in a health-care-related field (that is, nursing, medicine, pharmacy, population health, public health, health care administration, health systems management, health care management) or
  - □ Work experience in health care delivery, or
  - □ Have taken a course in health care delivery such as Health Systems Engineering (IE 417), Health Care Systems (Nursing 105), Health Systems and Health Care Delivery (Law 940), or Introduction to Health Services Research (Population Health 796).

I have complete the tentative study plan and also understand that I am required to receive a Cumulative GPA of 3.2 for all courses related to the Patient Safety Certificate.

Student’s signature: __________________________ Date: __________

I have met with the student above and agree to advise him/her for the Patient Safety Cert.

Advisor’s signature: __________________________ Date: __________
# PATIENT SAFETY CERTIFICATE TENTATIVE STUDY PLAN

<table>
<thead>
<tr>
<th>Student Name:</th>
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<tbody>
<tr>
<td>Campus ID:</td>
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<table>
<thead>
<tr>
<th>Required Courses</th>
<th>Credits</th>
<th>Term</th>
<th>Grade</th>
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<tr>
<td>ISyE 961: Patient Safety Research Seminar</td>
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<td>Elective Course:</td>
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</tbody>
</table>

| Total Credits:                                         | 15      |      |       |

Created 8/15/2011
PATIENT SAFETY CERTIFICATE COMPLETION FORM

<table>
<thead>
<tr>
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</tr>
<tr>
<td><strong>Expected Graduation Term:</strong></td>
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</tbody>
</table>

I affirm that I have completed all of the course requirements for the Patient Safety Certificate, as listed on the back of this form. I also have a cumulative GPA of 3.2 for all courses related to the Patient Safety Certificate.

Student’s signature: ___________________________ Date: ________

Advisor’s signature: ___________________________ Date: ________

Patient Safety Certificate Start Date: ________________

Patient Safety Certificate Completion Date: ________________
# PATIENT SAFETY CERTIFICATE FINAL COURSE PLAN

<table>
<thead>
<tr>
<th>Student Name:</th>
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<tr>
<td>- ISyE 653: Job and Organizational Design</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

| Elective Course:                                | 3       |      |       |

| Total Credits:                                  | 15      |      |       |

Created 8/15/2011
Proposal for a Graduate Certificate in Patient Safety

*What is the suggested name for this program?*

Name: Certificate in Patient Safety.

*Why have a Certificate in Patient Safety?*

The name reflects the goal of the certificate program – advanced training in theories, principles, tools, and methods for improving the safety of health care delivery. Patient safety (i.e. eliminating or reducing preventable harm to patients in health care delivery organizations) is recognized as a major priority throughout the world, and specifically in the US, as evidenced by (a) the recent Institute of Medicine reports “To Err is Human: Building a Safer Health System” and “Crossing the Quality Chasm”, (b) the $50 million allocation from Congress to the Agency for Healthcare Research and Quality (AHRQ) to fund patient safety research, (c) the commissioning of the Quality Interagency Coordination Task Force (QuIC) in 1998 in accordance with a Presidential directive to ensure that all Federal agencies involved in health care services are working toward the common goal of improving quality care, the Joint Commission on Accreditation of Health Care Organization’s patient safety standards.

As part of the $50 million Agency for Healthcare Research and Quality initiative, the Center for Quality and Productivity (CQPI), a Center affiliated with the Industrial Engineering department, was awarded a Developmental Center for Evaluation and Research in Patient Safety, known as the CQPI Systems Engineering Initiative in Patient Safety (CQPI-SEIPS). The proposed Certificate is being designed by faculty involved in the CQPI-SEIPS, as part of the educational mission of the CQPI-SEIPS.

The major emphasis of this certificate is to increase student knowledge about how systems engineering and systems design can be used to identify patient safety problems, analyze patient safety problems and solve patient safety problems.

*Are any courses currently being offered at UW-Madison that address this?*

In response to this important issue, many of the faculty listed below as core faculty have already begun to work together to offer courses for students in patient safety. Currently, the Department of Industrial Engineering, Department of Population Health Sciences, School of Nursing, School of Pharmacy, and Department of Medical Physics all have faculty collaborating to teach courses in patient safety.

*Is there any overlap with any other degrees, certificates, or programs on campus or in the System?*

No. What makes this Certificate unique is the collaboration between Engineering and Health Care disciplines.

*When would this Certificate program begin?*

We seek to begin enrolling students into this Certificate program during the Fall 2004 or Spring 2005 semester, depending on when final approval is obtained.
A. Sponsoring Center, Program or Department

What department would serve as the program administrative home?

Department of Industrial Engineering, College of Engineering, UW-Madison

How does this certificate program contribute to the mission of the Industrial Engineering Department?

The mission of the IE department is to create, acquire, assimilate, apply, and transfer knowledge for the design, analysis, improvement and implementation of complex systems that include humans, materials, equipment and other resources -- the essence of Industrial Engineering. The mission of the Patient Safety Certificate Program is to create, acquire, assimilate, apply, and transfer knowledge for the design of safe health care systems. The certificate mission complements and extends the mission of the IE department into health care delivery. Furthermore, a top strategic objective of the IE department is to further develop and promote its health systems engineering area, and this Certificate is consistent with that objective.

Is this certificate program interdepartmental or interdisciplinary? What is the expected student enrollment? Will the program address a perceived change in student educational objectives?

This certificate program is an interdisciplinary effort between several Departments, Schools, and Colleges: Department of Industrial Engineering (College of Engineering), School of Nursing, School of Pharmacy, Department of Medical Physics (Medical School), Law School, and Department of Population Health Sciences (Medical School). All of those departments are necessary for training students in patient safety.

We estimate an average enrollment of 7-15 students coming from the aforementioned departments and schools.

This certificate program addresses a national need for students trained in patient safety. As explained under “Suggested Program Name”, patient safety is a national and international priority. There is also a quickly growing market for graduates trained in patient safety. Currently health care organizations have to find ways to train their employees in the concepts of patient safety. This Certificate program will help to address this by training future health care employees and providers. For example, the Veteran’s Health Administration’s 162 hospitals are all required to hire Patient Safety Officers to lead efforts to improve patient safety, and hospitals around the country are following by trying to hire their own patient safety improvement staff. In addition, universities are seeking to recruit faculty to conduct research and teach courses in patient safety and nonprofits organizations focused on health care quality and safety need to similarly trained individuals. There are, however, no programs anywhere in the country currently offering training specifically in patient safety. Various courses in health care quality are taught in public health programs, nursing schools, and pharmacy schools around the country. These are often taught as part of Master’s in Public Health, Master’s in Health Administration, Master’s in Health Systems Management, or Master’s in Health Care Management. None of those degrees offers specific focus on safety.
Is the certificate duplicative of an existing major? Is it anticipated that a major may be offered in the same or similar subject?

The certificate program does not duplicate any existing major. It is possible that in the future a Master’s in Patient Safety will be offered.

B. Academic and Other Administrative Support.

Is there an adequate core of faculty to support the certificate program and offer the courses it requires? Is the faculty and staffing structure adequate to support student advising? Will administration of and exceptions in the certificate program be assigned to a specific faculty/staff member?

There is an adequate core of faculty to support the program and offer the required courses. We are defining “core” as faculty who are both teaching courses that are required or elective AND are willing and able to serve as student advisors. The participating faculty from industrial engineering, nursing, pharmacy, medical physics, and population health sciences regularly teach the courses for the certificate. The core faculty are as follows:

<table>
<thead>
<tr>
<th>Faculty Name and Title</th>
<th>IE</th>
<th>PHS</th>
<th>SoN</th>
<th>Pharm</th>
<th>Med Phys</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prof. Patricia Brennan, RN, PhD&lt;sup&gt;a,b&lt;/sup&gt;</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prof. Pascale Carayon, PhD&lt;sup&gt;b&lt;/sup&gt;</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prof. Dennis Fryback, PhD&lt;sup&gt;c,d,b&lt;/sup&gt;</td>
<td>X</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asst Prof. Ben-Tzion Karsh, PhD&lt;sup&gt;b&lt;/sup&gt;</td>
<td>X</td>
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<td></td>
<td></td>
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<tr>
<td>Prof. David Zimmerman, PhD&lt;sup&gt;c&lt;/sup&gt;</td>
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<tr>
<td>Prof. Emeritus David Gustafson, PhD&lt;sup&gt;a,b,c&lt;/sup&gt;</td>
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<tr>
<td>Prof. Michael Smith&lt;sup&gt;b&lt;/sup&gt;</td>
<td>X</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Asst Prof. Maureen Smith, MD, PhD&lt;sup&gt;d,l,g,b&lt;/sup&gt;</td>
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<tr>
<td>Asst Prof. Marry Ellen Murray, PhD</td>
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<td>X</td>
<td></td>
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</tr>
<tr>
<td>Clin. Asst. Prof. Kathleen Skibinski, RPh</td>
<td></td>
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<td>X</td>
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</tr>
<tr>
<td>Assoc. Prof. Bruce Thomadsen, PhD&lt;sup&gt;b&lt;/sup&gt;</td>
<td></td>
<td></td>
<td></td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> also with the Biomedical Engineering Center  
<sup>b</sup> also with the Center for Quality and Productivity Improvement  
<sup>c</sup> also with the Center for Health Systems Research and Analysis  
<sup>d</sup> also with the Wisconsin Comprehensive Cancer Center  
<sup>e</sup> also with the Industrial Relations Institute  
<sup>f</sup> also with the Center for Demography and Ecology  
<sup>g</sup> also with the Institute on Aging

The number of faculty listed is adequate to support student advising. Enrolled students must choose one of the participating faculty members as an advisor.

What resources, if any, will this certificate program require from other academic and student services units? For example, are seats available in courses required in other departments? Is adequate advising from other units available, if needed?
A Steering Committee composed of Professors Ben-Tzion Karsh (Chair), Pascale Carayon, Kathleen Skibinski, Maureen Smith, Mike Smith, Bruce Thomadsen and Mary Ellen Murray will oversee the Certificate program and decide whether and when to add/delete courses to the curriculum or modify the curriculum.

The core faculty will serve as student advisors to help the students through the program. The number of participating faculty will provide for sufficient advising resources. Students pursuing the Certificate will be provided with a form detailing the curriculum that will include space in which to indicate courses completed. Students pursuing the Certificate will have to meet each semester with their faculty advisor to have them sign-off on completed courses and discuss future courses. In this way, faculty advisors will know when each of their students has completed the Certificate. At that time, the IE Student Status Examiner will be notified that the student has completed the Certificate. The Student Status Examiner in Industrial Engineering will notify the registrar of students who have fulfilled the requirement.

**What are the pre-requisites, including concurrent enrollment as a degree-seeking undergraduate or graduate student if appropriate, for acceptance into the certificate program?**

To enroll, students must be accepted into a graduate or professional degree program. Students can be either full or part-time. Students must also have (1) a degree in a health care related field (i.e. nursing, medicine, pharmacy, population health, public health, health care administration, health systems management, health care management), (2) worked in health care delivery, or (3) have taken a course in health care delivery such as Introduction to Health Systems Engineering (IE691), Health Care Systems (Nursing 105), or Health Systems and Health Care Delivery (Law 940). Core faculty will determine if a student has met the pre-requisite requirement. The reason for the three options for pre-requisites is to allow people with and without health care backgrounds to obtain the certificate.

**Of the courses required for the completion of this certificate program is there a core set of courses required of all students? If not, what gives this certificate program its cohesiveness? Are the courses offered frequently enough to meet the anticipated demand? Do the courses have enough capacity to meet the anticipated demand?**

There are core courses and a mandatory seminar, as detailed in Section C, under question 1. All of the core course instructors have verified that no additional resources will be necessary to meet the additional demand that may be added by 7-15 students enrolled in the certificate.

**C. Academic Requirements.**

1. **What is the required course work for the Certificate program?**

The Certificate requires 15-17 credits, of which 12-14 credits come from core or otherwise mandatory coursework.

<table>
<thead>
<tr>
<th>Mandatory Certificate Courses</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Every student enrolled in the Certificate must attend Friday morning patient safety research</td>
<td>1</td>
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</table>
seminars (IE 961) sponsored by the CQPI-SEIPS at UW-Madison. These 1-credit seminars occur once a month, last one hour, and have presenters covering a variety of patient safety topics.

2. Every student enrolled in the curriculum must complete the equivalent of a 15 day patient safety practicum during one of their semesters in graduate school. To meet this requirement, students will be expected to work on an actual patient safety project with a health care delivery organization (in-patient, out-patient, long-term care, home care, etc.) in which they will be involved in the design, measurement, analysis, implementation and/or evaluation of a patient safety project. There are three ways to fulfill this requirement:

   a. If a student works for a health care delivery organization and is working on such a project for the minimum equivalent of 15 days in a semester, that work can count toward the requirement if approved by the advisor.

   b. If a student must complete a project for another course, and that project is a patient safety project that requires the equivalent of 15 days throughout the semester, that work can count toward the requirement if approved by the advisor.

   c. If a student does not otherwise have access to a patient safety project, they will be able to sign up for a 2-credit patient safety practicum. Certificate core faculty will assist in placing the student in a health care delivery organization.

If student meets “a” or “b” above, they will not have to sign up for the 2-credit practicum, will fulfill the requirement, and will complete a total of 15 credits for the Certificate. If the student needs to take the practicum, they will complete the Certificate with 17 credits.

3. Each student must take Pharmacy 490: Medication Use Safety, which covers topics related to the safe preparation and delivery of medications.  

4. Each student must take Medical Physics 559: Patient Safety Risk Assessment, which covers patient safety analytical tools.  

5. Each student must take Population Health Sciences 703: Quality of Health Care, which covers quality improvement techniques applicable to safety improvement.

6. Each student must take at least one of the following courses, each of which teaches essential systems engineering ideas, theories and methods:
   a. IE 549: Advanced Human Factors Engineering
   b. IE 555: Accident Causation and Analysis
   c. IE 652: Sociotechnical Systems
   d. IE 653: Job and Organizational Design

**TOTAL** 12-14

Together, the curriculum covers the following topics:
- Systems engineering ideas, theories and methods
- Basic patient safety terms, concepts, and statistics
- Medical error causation
- Human error
- Safety tools to assess safety and risk
- Systems design principles
- Culture
• Measurement of risk
• Analysis of safety and risk
• Automation used to improve patient safety
• Human factors engineering as applied to patient safety
• Finance/economics of patient safety
• Organizations involved in patient safety
• Medication use process and safety
• Implications of medication errors
• Teamwork in health care
• Medical error reporting
• Quality improvement from the health care perspective
• Quality improvement from the engineering perspective

Depending on whether a student needs to take the 2-credit practicum, they will be left with 1 or 3 credits remaining after the mandatory portion. Those requiring 1 credit can either take a relevant independent study or can take an additional 2-3 credit course from the elective list below. Those requiring 3 credits can either take a relevant independent study or an additional course from the elective list below. Elective courses must be approved for each student by the advisor.

Electives

History of Medicine
HM545: Ethical and Regulatory Issues in Clinical Investigation

Industrial Engineering Courses

IE349: Introduction to Human Factors Engineering (M. Smith, 3cr, cross-listed with Psych)
IE515: Engineering Management (H. Steudel, 3cr)
IE549: Advanced Human Factors Engineering (Carayon, 3cr)
IE555: Human performance and accident causation (M. Smith, 3cr)
IE556: Occupational Safety and Health (B. Karsh, 3cr)
IE575: Introduction to quality engineering (H. Nembhard, 3cr)
IE616: Planning large-scale complex systems (P. Brennan, 3cr)
IE617: Health information systems (P. Brennan, 3cr)
IE652: Sociotechnical systems (B. Karsh, 3cr, cross-listed with Psych)
IE653: Organization and job design (P. Carayon / M. Smith, 3cr, cross-listed with Psych)
IE691: Introduction to Health Systems Engineering (P. Brennan, 3cr)
IE691: Technology Implementation (B. Karsh, 3cr)
IE854: Human Error (P. Carayon, 1 or 3 cr)
IE859: Seminar on Human Factors and Patient Safety (B. Karsh, 1 or 3 cr)

Law School

Law 854 – Center for Patient Partnerships (B. Bowers (Nursing), M. Gaines (Law), L. Reivitz (Nursing), 3cr)
Nursing

Nursing 415 Organizational Influences on Interdisciplinary Practice (3cr)
Nursing 761: Health Program Planning, Evaluation, and Quality Improvement (S. Zahner, 3cr)
Nursing 802: Ethics and the Responsible Conduct of Research

Population Health Sciences

PHS 548 Economics of Health Care
PHS 719 Seminar-Contemporary Issues in Health Care
PHS 796 Introduction to Health Services Research
PHS 797 Strategy and Methods in Epidemiology
PHS 798 Epidemiologic Methodology
PHS 800 Quantitative Methods in Population Health I
PHS 802 Epidemiology of Chronic Diseases
PHS 803 Monitoring Population Health
PHS 875 Assessment of Medical Technologies (D. Fryback, 3cr)

2. Will the program admit both degree seeking and special students or will there be restrictions?

No restrictions.

D. Resources Issues.

What are the sources of funding for the faculty and staff involved with the program? Are additional staff needed? Is there adequate support for the program (supplies and expenses, capital equipment, space, library...)?

The participating faculty are currently tenured, tenure-track or clinical professors already offering the courses listed for the curriculum. No additional sources of funding will be necessary. No additional capital equipment, space or library acquisitions will be necessary.
Appendix – Certificate Checklist

Intended Audience (check all that apply)
- students who have successfully completed an undergraduate degree or its equivalent
- students currently enrolled (or intending to enroll) in an approved graduate program at UW-Madison
- students seeking a master's and/or PhD degree
- students who are seeking professional development, not a graduate degree
- students not enrolled in a graduate program or intending to enroll in a graduate degree program
- post-doctoral candidates on the UW-Madison campus
- post-doctoral candidates not on the UW-Madison campus
- other, please describe

Program Type
- Capstone certificate (see certificate policy)
- Graduate certificate (see certificate policy)
- Master’s degree (indicate MA, MS, MFA or other)
- PhD degree
- Minor (stand alone)

Program Design
- Strict cohort program (student not allowed to take coursework outside of curriculum)
- Student enrolled in program allowed to take coursework outside of curriculum
- Student enrolled in program allowed to simultaneously pursue additional graduate program(s)
- Student enrolled in program not allowed to simultaneously pursue additional graduate program(s)
- Student enrolled full-time
- Student enrolled part-time
- Student allowed to be full- or part-time
- Time limit to complete program: Completion prior to graduation from Master’s or PhD program.

Student Recruitment (University approval is required to advertise program)
- Program included in Graduate School materials
- Program not included in Graduate School materials
- Program allowed to recruit and admit to Graduate School prior to "formal" approval but with Graduate School oversight
- Program allowed to recruit and admit without Graduate School oversight prior to any "formal" approval

Application/Admission Procedure
Student applies directly to program (no Graduate School oversight). Application Fee processed by program, money to general fund.

Student applies directly to program (Graduate School oversight). Application Fee processed by program, money to general fund.

Student applies via standard Graduate School admissions process

Currently enrolled students apply directly to program (e.g., certificates, minors)

Registration/Enrollment Procedure

Student invited to participate in Graduate School orientation programs

Student participates in program orientation only

Student eligible to register with graduate students via "touchtone"

Student eligible to register with special students via "touchtone"

Student registers with program staff, off-line registration

Student is considered a graduate student for data purposes

Student is not considered a graduate student for data purposes (indicate category of student)

Tuition

Student pays graduate tuition plus a differential which goes back to program (charge-back policy)

Student pays graduate tuition

Student pays an "executive" tuition - all of it goes to program

Student pays an "executive" tuition - percentage of it goes to program (charge-back policy)

Financial Aid

Student eligible for need-based financial aid (Student Financial Services)

Student not eligible for need-based financial aid

Student eligible for merit-based financial aid from program

Student eligible for TA, PA, RA, graduate fellowships

Student not eligible for campus based merit awards (graduate assistantships & fellowships)

Faculty

UW-Madison faculty only

Collaborative (inter-institutional) faculty (usually teaching distance courses)

UW-Madison multi-disciplinary faculty

Coursework (UW-Madison graduate level = numbered 300 and above)

Distance courses exclusively

Some courses available via distance (>25%)

Some courses available via distance (<25%)

Unit based
Credit based
Module based
Collaborative (inter-institutional) courses available
Collaborative (inter-institutional) courses exclusively
Capstone experience required (e.g., laboratories, practica, internships, projects, or theses)

Student Records
- Standard transcripts produced by Registrar
- Transcripts/Records kept and produced by School/College/Program
- Records maintained in Graduate School (student's dean's office)/Registrar
- Records maintained in program only (student's dean's office is the School/College)
- Records maintained in Program/Registrar (student's dean's office is the School/College)
- Standard diploma produced by Registrar
- Certificate recorded on transcript, no "paper" document produced
- Certificate recorded on transcript, "paper" document produced by program
- Certificate recorded on transcript, "paper" document produced by Graduate School

Student Services
- High service component necessary/delivered by program
- Standard student services
- Additional campus student services needed (e.g., evening, weekend)

Academic Services
- Satisfactory progress criteria (see Graduate School Catalog for examples)

List Criteria:
- 3.0 overall GPA
- 3.0 GPA in certificate courses
- All certificate course work completed prior to graduation with Master's or PhD

Graduate School monitors minimum criteria
Program monitors all satisfactory progress criteria

Degree/Product and Commencement
- Student receives graduate degree and is eligible to attend university commencement ceremony
- Student receives a different "product" and is eligible to attend university commencement ceremony
- Student receives a different "product" and is not eligible to attend university commencement ceremony
- Student receives a different "product" and is eligible to participate in commencement ceremonies conducted by the program
Is it important that this program be "monitored" by the Graduate School (e.g., Graduate School will conduct program review in cooperation with the designated college) and listed as a Graduate School program?

☑ Yes (please explain)

As this is a graduate certificate program, it should be listed as a Graduate School program and reviewed using the 5 year ongoing assessment.

☐ No (please explain)

Ongoing Assessment

☑ Program reviewed within the standard review schedule (5 year)

☐ Other (please describe)

Points to consider for ongoing assessment (see Program Review Information)

Fiscal Goals

Year one - none

Year two - none

Year three - none

Primary Source of Funding for Program

Regular tuition. The courses comprising the certificate program are existing UW courses being taught for degree credit.

Administrative Support Needs

None

Enrollment Goals

Year one - ?

Year two - ?

Year three - ?

Market for Degrees

List of competition/national rankings: ??????
## Questions and Issues to Discuss

<table>
<thead>
<tr>
<th>Problem/Issue</th>
<th>Answer</th>
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<tr>
<td>Is there any official application form? You showed me the &quot;planning worksheet&quot;, but there are also a number of questions raised in the documents at <a href="http://wiscinfo.doit.wisc.edu/obpa/uapcCAPSTONES.htm">http://wiscinfo.doit.wisc.edu/obpa/uapcCAPSTONES.htm</a> that are not directly addressed in the &quot;planning worksheet&quot; or suggest much more information is needed. I combined all of the questions raised from the planning worksheet and the online documents to structure the application in a manner I thought useful. Is that okay?</td>
<td>No official form. What I did is fine.</td>
</tr>
<tr>
<td>I'm not familiar with the types of &quot;special&quot; student classifications. We would like students who are not seeking degrees.</td>
<td>If the certificate is tied to degree completion, it is difficult to have special students. If certificate completion is not tied to completing a degree, special students are not a problem. Either way can be done, as long as details are worked out. We should draft the application per our wishes and work out the technical details later.</td>
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<tr>
<td>Special students are not degree seeking students, so having them included in a graduate cert proposal gets complicated - they are admitted through the Division of Continuing Studies and are more like undergraduates than grad students, and only pay undergraduate tuition.</td>
<td></td>
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<tr>
<td>Here's Judith's suggestion, which I think is a good idea (wish I'd thought of it). Propose both a graduate certificate for degree seeking graduate students and a capstone certificate for students who are admisible to the Graduate School but just for the certificate, so they earn just the certificate and so are a bit like &quot;special&quot; students in this regard.</td>
<td>This would require that you write up</td>
</tr>
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</table>
What is the role of the Program Administrative Home? I realize the answer depends on whether we are admitting degree students, special students, or professionals seeking continuing education, so I'll provide you with context. We would like to start by only admitting graduate degree students and students that have enrolled as special students into the graduate school. Registrar would keep student records and the certificate would be recorded on the transcript. Eventually, however, we'd like to be able to provide courses to practicing Physicians, Nurses, Pharmacists, so we'd like to have those students pay an Executive Tuition, where all of the money from those students goes back to the program. In other words, the goal is to eventually have a hybrid program that would accommodate degree and enrolled special students (paying UW tuition) and professionals seeking additional

<p>| Responsibilities – answering questions, keeping track of who is in it, notifying registrar of students who have fulfilled the requirement. |
| Certificate administrative homes must tell registrars office when students have completed a certificate program. We must come up with a mechanism for tracking students so that we know when students complete. |
| Just get this approved as graduate certificate, don't worry yet about future plans of CEUs or distance or |</p>
<table>
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<tr>
<th>Training (paying us). But, we foresee that we will only admit degree and enrolled special students for at least the first 3-5 years. Having said all of that, for our first 3-5 years, what role would the Program Administrative home play?</th>
<th>Collecting tuition because rules governing certificate programs change so quickly, can’t really plan for 3-5 years down the road. Academic program live in academic department homes. It is most appropriate for academic programs to have a home with the appropriate supportive infrastructure... faculty tenure home, timetable responsibility, graduate advisor/coordinator and so on. There was a very recent example of a certificate coming forward that originally wanted to have a home in a center (Transportation Management and Policy) and they were required to find an academic home for the certificate. So this is standard.</th>
</tr>
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<tr>
<td>Given what you describe above, I really think the matching graduate certificate (for degree seeking grad students) and capstone certificate (for execs) is the way to go. As I described on the phone, someone will have to administer the program and keep track of completions and be the contact with the students and the Registrar’s Office and the Graduate School on all of this.</td>
<td>Also note that when you are a little further along, if you decide you want to charge &quot;executive&quot; tuition for a capstone certificate, then you will need to talk to John Torphy (or his successor). But this will follow after you talk to Judith. Judith will have some opinions about this, I think.</td>
</tr>
<tr>
<td>Given all that I said above in #3, what would the differences be between having the program administrative home be a department versus a Center?</td>
<td>Centers are not tenure homes and don’t offer courses, so must Certificates are almost always</td>
</tr>
<tr>
<td>Question</td>
<td>Answer</td>
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<td>-------------------------------------------------------------------------</td>
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<tr>
<td>What are the Administrative reporting requirements, if any? For example, do we have to report annually the number of students enrolled in and graduated from the certificate program? If yes, to whom do we report?</td>
<td>No reporting requirements. You have to work with the Registrar's Office to tell them which students have satisfied the certificate requirements and then they will add the appropriate information to the student record.</td>
</tr>
<tr>
<td>Can we set up the certificate program such that degree students cannot get our certificate without completing their degree?</td>
<td>Yes</td>
</tr>
<tr>
<td>Is it possible to only admit degree seeking students, but still have a charge-back policy? I'm asking this because we are leaning toward having the administrative home by a Center, which means that we'd need to have and pay somebody to keep track of the students enrolled in the certificate. If &quot;yes&quot;, how does that work?</td>
<td>Generally, no. The special pricing/tuition options are associated with capstones certs or degree programs (which you can discuss with Grad School and John Torphy).</td>
</tr>
<tr>
<td>Could this be approved by fall 03?</td>
<td>yes</td>
</tr>
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