ARIZONA STATE UNIVERSITY

GENERAL STUDIES COURSE PROPOSAL COVER FORM

Course information:

*Copy and paste **current** course information from Class Search/Course Catalog.*

Academic Unit: **College of Health Solutions** Department: **Biomedical Informatics**

Subject: **BMI** Number: **482** Title: Biomedical Informatics Capstone I Units: 3

Is this a cross-listed course? No
If yes, please identify course(s)

Is this a shared course? (choose one) If so, list all academic units offering this course
Course description:

Requested designation: (Choose One)

*Note- a **separate** proposal is required for each designation requested*

Eligibility:

Permanent numbered courses must have completed the university's review and approval process.
For the rules governing approval of omnibus courses, contact the General Studies Program Office at (480) 965-0739.

Area(s) proposed course will serve:

A single course may be proposed for more than one core or awareness area. A course may satisfy a core area requirement and more than one awareness area requirements concurrently, but may not satisfy requirements in two core areas simultaneously, even if approved for those areas. With departmental consent, an approved General Studies course may be counted toward both the General Studies requirement and the major program of study.

Checklists for general studies designations:

Complete and attach the appropriate checklist

- Literacy and Critical Inquiry core courses (L)
- Mathematics core courses (MA)
- Computer/statistics/quantitative applications core courses (CS)
- Humanities, Fine Arts and Design core courses (HU)
- Social and Behavioral Sciences core courses (SB)
- Natural Sciences core courses (SQ/SG)
- Global Awareness courses (G)
- Historical Awareness courses (H)
- Cultural Diversity in the United States courses (C)

A complete proposal should include:

- ☒ Signed General Studies Program Course Proposal Cover Form
- ☒ Criteria Checklist for the area
- ☒ Course Catalog description
- ☒ Course Syllabus
- ☒ Table of Contents from the textbook and list of required readings/books

Contact information:

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Department Chair/Director approval: *(Required)*

Chair/Director name (Typed): Dr. George Runger Date: 1/30/14

Chair/Director (Signature): George Runger

Rev. 1/94, 4/95, 7/98, 4/00, 1/02, 10/08, 11/11/ 12/11, 7/12

Arizona State University Criteria Checklist for

LITERACY AND CRITICAL INQUIRY - [L]

Rationale and Objectives

Literacy is here defined broadly as communicative competence in written and oral discourse. **Critical inquiry** involves the gathering, interpretation, and evaluation of evidence. Any field of university study may require unique critical skills which have little to do with language in the usual sense (words), but the analysis of spoken and written evidence pervades university study and everyday life. Thus, the General Studies requirements assume that all undergraduates should develop the ability to reason critically and communicate using the medium of language.

The requirement in Literacy and Critical Inquiry presumes, first, that training in literacy and critical inquiry must be sustained beyond traditional First Year English in order to create a habitual skill in every student; and, second, that the skills become more expert, as well as more secure, as the student learns challenging subject matter. Thus, the Literacy and Critical Inquiry requirement stipulates two courses beyond First Year English.

Most lower-level [L] courses are devoted primarily to the further development of critical skills in reading, writing, listening, speaking, or analysis of discourse. Upper-division [L] courses generally are courses in a particular discipline into which writing and critical thinking have been fully integrated as means of learning the content and, in most cases, demonstrating that it has been learned.

Students must complete six credit hours from courses designated as [L], at least three credit hours of which must be chosen from approved upper-division courses, preferably in their major. Students must have completed ENG 101, 107, or 105 to take an [L] course.

Notes:

1. ENG 101, 107 or ENG 105 must be prerequisites
2. Honors theses, XXX 493 meet [L] requirements
3. The list of criteria that must be satisfied for designation as a Literacy and Critical Inquiry [L] course is presented on the following page. This list will help you determine whether the current version of your course meets all of these requirements. If you decide to apply, please attach a current syllabus, or handouts, or other documentation that will provide sufficient information for the General Studies Council to make an informed decision regarding the status of your proposal.

Proposer: Please complete the following section and attach appropriate documentation.

ASU - [L] CRITERIA

TO QUALIFY FOR **[L]** DESIGNATION,THE COURSE DESIGN MUST PLACE A MAJOR EMPHASIS ON COMPLETING CRITICAL DISCOURSE--**AS EVIDENCED BY THE FOLLOWING CRITERIA:**

YES	NO		Identify Documentation Submitted
☒	☐	**CRITERION 1:** At least 50 percent of the grade in the course should depend upon writing, including prepared essays, speeches, or in-class essay examinations. *Group projects are acceptable only if each student gathers, interprets, and evaluates evidence, and prepares a summary report*	

1. Please describe the assignments that are considered in the computation of course grades--and indicate the proportion of the final grade that is determined by each assignment.
2. **Also:**

Please **circle, underline, or otherwise mark** the information presented in the most recent course syllabus (or other material you have submitted) that verifies **this description** of the grading process--and label this information **"C-1".**

C-1

☒	☐	**CRITERION 2:** The composition tasks involve the gathering, interpretation, and evaluation of evidence	

1. Please describe the way(s) in which this criterion is addressed in the course design
2. **Also:**

Please **circle, underline,** or **otherwise mark** the information presented in the most recent course syllabus (or other material you have submitted) that verifies **this description** of the grading process--and label this information **"C-2".**

C-2

☒	☐	**CRITERION 3:** The syllabus should include a minimum of two substantial writing or speaking tasks, other than or in addition to in-class essay exams	

1. Please provide relatively detailed descriptions of two or more substantial writing or speaking tasks that are included in the course requirements
2. **Also:**

Please **circle, underline,** or **otherwise mark** the information presented in the most recent course syllabus (or other material you have submitted) that verifies **this description** of the grading process--and label this information **"C-3".**

C-3

ASU - [L] CRITERIA

YES	NO		Identify Documentation Submitted
☒	☐	**CRITERION 4:** These substantial writing or speaking assignments should be arranged so that the students will get timely feedback from the instructor on each assignment in time to help them do better on subsequent assignments. *Intervention at earlier stages in the writing process is especially welcomed*	

1. Please describe the sequence of course assignments--and the nature of the feedback the current (or most recent) course instructor provides to help students do better on subsequent assignments

2. **Also:**

Please **circle, underline,** or **otherwise mark** the information presented in the most recent course syllabus (or other material you have submitted) that verifies **this description** of the grading process--and label this information **"C-4".**

C-4

Course Prefix	Number	Title	Designation
BMI	482	Biomedical Informatics Capstone I	

Explain in detail which student activities correspond to the specific designation criteria. Please use the following organizer to explain how the criteria are being met.

Criteria (from checksheet)	How course meets spirit (contextualize specific examples in next column)	Please provide detailed evidence of how course meets criteria (i.e., where in syllabus)
1	Each student will have 3 individual assignments that involve: a) identifying problems, b) fashioning solutions strategies and c) developing a draft research plan to evaluate the efficacy of their solution. These elements will contribute to the development of core scientific literacies including information gathering, development of testable hypotheses and development of research design that will serve to test their hypotheses. The students will not be expected to carry out the actual research project since that is well beyond the scope of the course. However, they will have the opportunity to engage in scientific writing and develop those much valued skills and competencies.	See the highlighted section of the syllabus identifying points for the written assignments, group reports and presentations (oral and written) and written project report. These highlighted assessments comprise 60% of the total course grade. Additional writing is required during the design documentation. The course is designed to foster basic and scientific literacies.
2	The assignments will necessitate that they research the problem. This would necessitate both a review of pertinent literature and a) further their development of information literacies (information retrieval using biobliographic/scholary resources, identifying relevant and credible sources) and b) gathering data through observations, interviews and critical document review (e.g., policy and procedures) which will serve to foster scientific literacy skills. Each student will discuss their work orally and will be critically reviewed by peers. In addition, the students will also participate in reviewing others work. They will	See the highlighted section of the syllabus. Outlined are project design documentaiton, peer evaluations, and creating a project prototype.

	learn to understand criteria for judging the plausibility of hypotheses (e.g., are they well substantiated), what constitutes evidence (can it be used to test the hypothesis) and the research design (learning what constitutes an effective research design). There are also core scientific literacies that are specific to applied research in clinical setting including matters of ethics and pragmatics (research that works in the abstract may simply not be realistic in a real-world clinical context).	
3	As described in response to criteria 1 and 2, there will be 3 written assignments and final project. Each student will present biweekly group reports and presentations. The oral reports will provide them opportunities to develop their scientific communication skills in a semi-formal environment that is intended to be both critical and supportive.	See the highlighted portions of the syllabus.
4	The course will provide the opportunity for both real-time feedback during oral presentation from instructors and peers, as well as timely written feedback on their assignments. In capstone courses, timely feedback is vital to the learning process and serves to shape expectations for subsequent assignments/presentations. Capstone courses provide a unique opportunity to foster critical inquiry literacies in a real world context and actualize them in a supportive classroom environment.	See the highlighted portions of the syllabus.

BMI 482 Biomedical Informatics, Capstone I

Course Syllabus
Instructor: Dr. George Runger, 480-884-0220
Office Hours: TBD
Class Meeting: TBD

Teaching Assistant: TBD
TA Office Hours: TBD

Textbook: *Biomedical Informatics. Computer Applications in Health Care and Biomedicine. Edward H. Shortliffe, Editor and James J. Cimino, Editor.*

Optional References: Additional Course readings to be determined

Prerequisites: Must be a senior BMI student and have completed ENG 101 with a C or Better, and **BMI 312** with a grade of B- or better.

Course Description: This class is the first of a two semester senior capstone project course. In BMI 482, students will plan the capstone project executed in the second capstone course, BMI 483.

Learning Objectives: This capstones course provides an opportunity for students to develop skills and competencies in an applied research context with a focus on real-world clinical problems. Upon completing BMI 482, students will possess the knowledge to conduct collaborative research in an applied clinical or health-related context. They will also develop the skills to gather requirements, clarify a problem in Biomedical Informatics, design solutions, formulate testable hypothesis, develop and write an evaluation plan. The work will include three 8-10 page written assignments, a 10-12 page final report and oral presentations. (C-2)

Catalog Description: First of two courses in capstone sequence for biomedical informatics majors emphasizing the development of scientific literacies, technical skills and effective team work within the context of a research project in biomedical informatics.

Course learning outcomes:

1. Plan and manage activities for a substantial biomedical informatics research project
2. Work collaboratively in a research context to gather requirements and clarify a problem
3. Critically analyze proposed solutions to a problem.
4. Develop a basic mastery of skills pertaining to information gathering, hypotheses testing and research design in applied contexts.
5. Use current techniques, skills and tools to design, implement and validate a solution to a biomedical informatics research problem
6. Communicate technical concepts and material effectively both orally and in writing.
7. Project planning and management.

Course assessment plan: (C-1)

Individual written assignments of 8-10 pages each (3) – 15%
These assignments will be assessed for prompt feedback (immediate oral feedback and 3-day turnaround in writing) in order for each student to make modifications needed relative to the development of the final project (C-4)

Weekly/bi-weekly group reports and presentations – oral and written – 15%
Project requirements and design documentation – 20%
Peer evaluations – 10 %
Project prototype – 10%
Written project report, 10-12 pages – 30%
These assignments will be assessed for prompt feedback (immediate oral feedback and 3-day turnaround in writing) in order for each student to make modifications needed relative to the development of the final project (C-4)

Grades will be assigned based on the scale 90%+ = A, 80%-89% = B, etc. Plus/minus grades will be assigned.

Major topics and time covered:

1. Requirements gathering and representation, reviewing use cases, tool selection (3 weeks)
2. Experimental and quasi-experimental methods in applied research (3 weeks)
3. Critical evaluation of design alternatives and fashioning solutions that are appropriate for the problem and realistic for the particular setting (3 weeks)
4. Creating a test plan and how to do an evaluation and select appropriate tools (3 weeks)
5. Research evaluation methods with a particular focus on final projects (2 weeks)

Document History:

Course coordinator	Creation date	TAC approval date	UPC/GPC approval date