

General Studies Request Form

Please see the [General Studies Request Overview and FAQ](#) for information and quick answers.

New permanent numbered courses must be submitted to the workflow in [Kuali CM](#) before a General Studies request is submitted here. The General Studies Council will not review requests ahead of a new course proposal being reviewed by the Senate.

Proposal Contact Information

Submitter Name	Submitter Email	Submitter Phone Number
Tiffany Wingerson	tiffany.wingerson@asu.edu	480-965-2335

College/School	Department/School
Ira A. Fulton Schools of Engineering (CES)	School for Engineering of Matter, Transport and Energy (CMULTISCI)

Submission Information

Type of submission:

Mandatory Review (Course or topic currently holds this designation and is undergoing 5-year review)

What is Mandatory Review?

Courses and topics previously approved for General Studies must be reviewed every five years by the General Studies Council to verify requirements are still met.

ASU Request

Is this request for a permanent course or a topic?

Permanent Course

Subject Code	Course Number	Units/Credit Hours
CHE	462	3

Course Information

Courses approved for General Studies require mandatory review every five years.

Course Title

Process Design

Course Catalog Description

Applies economic principles to optimize equipment selection and design; process safety; development and design of process systems.

Is this a crosslisted course?

No

Is this course offered by another academic unit?

No

General Studies

Requested Designation

L - Literacy and Critical Inquiry

L: Literacy and Critical Inquiry

Rationale and Objectives

Literacy is here defined broadly as communicative competence—that is, 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 that have little to do with language in the usual sense (words), but the analysis of written and spoken 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 skill levels become more advanced, as well as more secure, as the student learns challenging subject matter. Thus, two courses beyond First Year English are required in order for students to meet the Literacy and Critical Inquiry requirement. 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.

[Revised October 2020]

Please note:

1. ENG 101, 105, or 107 must be prerequisites to this course. ENG 102, 105, or 108 are acceptable as alternatives.
2. Honors Thesis courses ([493 omnibus](#)) meet "L" requirements.
3. The list of criteria that must be satisfied for designation as a Literacy and Critical Inquiry "L" course is presented below. It 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, 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.

To qualify for the "L" designation, the course design must place a major emphasis on completing critical discourse—as evidenced by the following criteria:

"L" Criterion 1

Per [policy](#), students must have completed ENG 101, 105, or 107 to take an "L" course. This means the course must have, at minimum, ENG 101, 105, or 107 (or ENG 102, 105, or 108) as a prerequisite.

The "L" designation may not be requested for omnibus special topics, as the course-level prerequisites required for "L" consideration are not possible at the class/topic level.

Please confirm that the course has the appropriate prerequisites, or that a proposal to change the prerequisites has been submitted in Quali CM.

Yes

Identify the submitted documentation that provides evidence.

Syllabus

Provide detailed evidence of how this course meets this criterion.

The courses prerequisite(s) are listed as follows in the ASU catalog: Chemical Engineering BSE major; CHE 432 with C or better; CHE 433 with C or better; CHE 442 with C or better; ENG 101, 105, or 107 with C or better Reserved Seat Inf

"L" Criterion 2

At least 50 percent of the grade in the course should depend upon writing assignments (see Criterion 3). Group projects are acceptable only if each student gathers, interprets, and evaluates evidence, and prepares a summary report. *In-class essay exams may not be used for the "L" designation.*

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.

Points

Individual Homework and In-Class Assignments	150
Professionalism/Participation	50
Team* Interim Project Report 1- Project Basis	100
Interim Project Report 2- Base Case Design and M&E Balances	50
Final Project Report	400
Final Oral Presentation	150
Total	1000

The current distribution of credit has 3 reports the students complete in class for 65% of the grade (and a final presentation worth 15%). These are all group submissions. Students are asked to explain who is responsible for what parts of the analysis/preparation of deliverables.

Identify the submitted documentation that provides evidence.

Syllabus

How does this course meet the spirit of this criterion?

The current distribution of credit has 3 reports the students complete in class for 65% of the grade (and a final presentation worth 15%). These are all group submissions. Students are asked to explain who is responsible for what parts of the analysis/preparation of deliverables.

Provide detailed evidence of how this course meets this criterion (i.e. where in the syllabus).

Page 7 of the syllabus

"L" Criterion 3

The writing assignments should involve gathering, interpreting, and evaluating evidence. They should reflect critical inquiry, extending beyond opinion and/or reflection. Please include detailed assignment descriptions in the syllabus to substantiate this criterion.

Describe the way(s) in which this criterion is addressed in the course design.

Entrepreneurial Mindset (EM):

The senior design program leans heavily on the entrepreneurial mindset (<https://engineeringunleashed.com/>), which goes beyond the concept of traditional entrepreneurship and "start-up" mentality to provide the best possible professional preparation for any job in engineering or a career that can be

built on the combination of engineering skill set and entrepreneurial mindset. The core components of the entrepreneurial mindset are the 3C's: Curiosity, Connections, and Creating Value. In developing an understanding of these elements, students are expected to consider the following:

- a. Critically observes surroundings to recognize opportunity.
- b. Explores multiple solution paths.
- c. Gathers data to support and refute ideas.
- d. Suspends initial judgement on new ideas.
- e. Observes trends about the changing world with a future-focused orientation/ perspective.
- f. Collects feedback and data from many customers and customer segments.
- g. Applies technical skills/knowledge to the development of a technology/product.
- h. Modifies an idea/product based on feedback.
- i. Focuses on understanding the value proposition of a discovery.
- j. Describes how a discovery could be scaled and/or sustained, using elements such as revenue streams, key partners, costs, and key resources.
- k. Defines a market and market opportunities.
- l. Engages in actions with the understanding that they have the potential to lead to both gains or losses.
- m. Articulates the idea to diverse audiences.
- n. Persuades why a discovery adds value from multiple perspectives (technological, societal, financial, environmental, etc.).
- o. Understands how elements of an ecosystem are connected.
- p. Identifies and works with individuals with complementary

Identify the submitted documentation that provides evidence.

Syllabus

How does this course meet the spirit of this criterion?

Students are given open-ended design projects where gathering, interpreting, and evaluating evidence has to be done to come up with a viable design solution.

Provide detailed evidence of how this course meets this criterion (i.e. where in the syllabus).

Syllabus pages 2-3

"L" Criterion 4

The syllabus should include a minimum of two writing and/or speaking assignments that are substantial in depth, quality, and quantity. Consider at least 5 pages (~2500 words) for an in-depth critical analysis and 10-15 minutes for a presentation. Substantial writing assignments entail sustained in-depth engagement with the material. Examples include research papers, reports, articles, essays, or speeches that reflect critical inquiry and evaluation. Assignments such as brief reaction papers, opinion pieces, reflections, discussion posts, and impromptu presentations are not considered substantial writing/speaking assignments.

Please include detailed assignment descriptions in the syllabus to substantiate this criterion.

Provide relatively detailed descriptions of two or more substantial writing or speaking tasks that are included in the course requirements.

The interim report technical expectations are as follows:

All project specific considerations and requirements have been addressed. Consistent evidence of rational, sound data-based engineering analysis is used in decision making (selection of Base Case Design alternative). Design decisions are fully consistent with design objectives stated in the Project Basis. The proposed Base Case Design is fully described and represents a viable solution to the design problem. Consistent evidence of rational, sound data-based engineering analysis is used to show the Base Case Design is logical/feasible.

There exists strong evidence that the authors acquired the prerequisite knowledge necessary to understand their problem and that the prerequisite knowledge was applied appropriately in developing the Base Case Design.

There exists strong evidence of creativity in the design/design approach.

The interim report presentation expectations are as follows:

Clear, concise, convincing original presentation. Well written with effective and professional visuals. Overall the document gives the reader high confidence that the authors fully understand the problem in its complex dimensions, and leads the reader to have high confidence in their solution.

The final project technical characteristics should include the following:

All project specific considerations and requirements have been addressed. Design objectives defined by the Project Basis are comprehensively met or exceeded. Base Case Design is completed and improved/optimized in accordance with the goals outlined in the Project Basis to produce the Recommended Design. Consistent evidence of rational, sound data-based engineering decisions making is used to justify all modifications to the Base Case design. Includes (but is not limited to) a detailed economic analysis or economic rationale for all proposed designs and modifications. Project recommendations encompass the scope of the project as it currently stands, while addressing recommendations relevant to changes (technological, political, economic, etc.) that will affect the proposed designs.

There exists strong evidence that the authors acquired the prerequisite knowledge necessary to understand their problem and that the prerequisite knowledge was applied appropriately in developing the proposed designs.

There exists strong evidence of creativity in design and/or design approach.

The final project communication characteristics should include the following:

Clear, concise, convincing original presentation. Well written with effective and professional visuals. Overall the document gives the reader high confidence that the authors fully understand the problem in its complex dimensions, and leads the reader to have high confidence in their solution.

Identify the submitted documentation that provides evidence.

Syllabus

How does this course meet the spirit of this criterion?

Both of these projects require critical inquiry that involves the gathering, interpretation, and evaluation of evidence. They also require presentations that include advanced language skills to present their findings to their peers.

Provide detailed evidence of how this course meets this criterion (i.e. where in the syllabus).

Syllabus- Grading Rubrics (pages 11-16)

"L" Criterion 5

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.*

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.

Of the three reports, report 1 is completed at the start of the semester and feedback is given by a member of the teaching staff. Report 2 is submitted before teams meet with the course instructor to discuss progress on the project. Feedback for the 2nd report is given during that time. Assignments are also staggered to allow timely follow-up and feedback.

Identify the submitted documentation that provides evidence.

Syllabus

How does this course meet the spirit of this criterion?

Technical projects are staggered to allow for constructive feedback. This encourages students to fully understand the technical concepts in chemical engineering while receiving feedback on English skills and concepts.

Provide detailed evidence of how this course meets this criterion (i.e. where in the syllabus).

Syllabus- Schedule page 9

Attach a sample syllabus for this course or topic, including the list of any required readings.

[CHE 462 Syllabus.pdf](#)

Attach the table of contents from any required textbook(s).

[Analysis, Synthesis, and Design of Chemical Processes, 5th Table of Contents.pdf](#)

Attach any other materials that would be relevant or helpful in the review of this request.

No Response

Form Submission - Proposer

Submitted for Approval | Proposer

Andrea Brown - March 5, 2023 at 11:06 AM (America/Phoenix)

Department Approval

Approved

Tiffany Wingerson - March 6, 2023 at 9:53 AM (America/Phoenix)

Valana Wells

Provost's Office Review

Approved

April Randall

Joni Lochtefeld - March 6, 2023 at 10:01 AM (America/Phoenix)

Literacy and Critical Inquiry Mandatory Review

Acknowledgement Requested

Patricia Webb

Brent Scholar - March 27, 2023 at 4:21 PM (America/Phoenix)

Resubmit

It is not clear from the application or the syllabus how long these assignments are, therefore information is incomplete for a final determination. In addition, assignments are not clearly marked signifying which ones are for Literacy. For example, Homework is not part of Literacy.

Emily Mertz

General Studies Council Meeting

Waiting for Approval

April Randall

Joni Lochtefeld

Proposer Notification

Notification

Andrea Brown
