

INSTITUTIONAL REVIEW BOARD PROPOSAL FORM

Do not change the text in the shaded areas of the form. Your responses to each question/section should be written where it says <<Overwrite Here>>; please keep your response in the same blue 10 pt Arial font.

1. APPLICATION INFORMATION

Title of Proposal	Enhancement of Freshman Engineering Student Success Through Implementing a Design Your Process to Success Project
Principal Investigator(s) and Degree(s)	Steffen Peuker, Ph.D, Jennifer Mott Peuker, Ph.D.
Principal Investigator(s) UAA Department	School of Engineering
PI(s) UAA phone number	9077866193
PI(s) Home or cell phone number	2174184919
Other Project Personnel and Contact Information	Ray Landis Dean Emeritus of Engineering, Computer Science, and Technology California State University, Los Angeles Phone: (818) 389-8474 Email: rlandis@calstatela.edu

Date Submitted	9/20/2012
Proposed Start Date	10/02/2012
Anticipated Completion Date	End of academic year 2016/2017

Indicate which review category for our application by placing an "X" in the first column on the left. See the IRBNet Library for the IRB Review Categories document. Note that the final determination of review category is made by the IRB Chair.

	Review Requested	Explanation (if needed)
X	Exempt	Proposed research falls under educational research conducted in educational setting and studies involving surveys, interviews, observation of public behavior or educational tests
	Expedited	
	Full Review	

Place an "X" in the left column to indicate that you have included Certificates of IRB Training for all PIs and Researchers. Please attach the certificates separately.

PRINCIPAL INVESTIGATOR ASSURANCE STATEMENT

By submitting this protocol application and signing the IRBNet package electronically, I certify that the information provided is true and complete. I agree to and will comply with the following statements:

1. I will abide by all regulations, policies and procedures applicable to research involving human subjects.
2. I will accept responsibility for the scientific and ethical conduct of this research.

3. I will accept responsibility for providing personnel (collaborators, staff, graduate students, undergraduate students, and volunteers) with the appropriate training and mentoring to conduct their duties as part of this research.
4. If this IRB Protocol Application is for student research, I certify that the student's graduate advisory committee has reviewed and approved this research protocol.
5. I will obtain approval from the IRB prior to amending or altering the research protocol, consent/assent forms or initiating further correspondence with the research subjects.
6. I will report immediately to the Office of Research Compliance (907-786-1099) any complaints from participants or others, any adverse events associated with research participation, and/or any unanticipated problems or issues related to this study.
7. I will comply in a timely manner with requests of the IRB regarding Continuing/Final Review.

I realize that failure to comply with the above provisions may result in suspension or termination of this project by the IRB and, if appropriate, restricted access to funding and notification of sponsor, and referral to the appropriate UAA administrative official(s) for disciplinary action.

2. FUNDING INFORMATION

Funding Type	Brief Description
Have you applied for external funding?	No If yes, include a copy of the funding proposal in the IRBNet package.
If yes, list the Agency	N/A
Proposal Number	N/A
Have you applied for internal funding?	No If yes, include a copy of the funding proposal in the IRBNet package.

3. PROJECT CLASSIFICATION

Type of Project	Brief Description
Faculty Research	
Doctoral or Master's Student – Thesis Research*	
Doctoral or Master's Student – Other Research*	
Undergraduate Student – Thesis Research*	
Undergraduate Student – Other Research*	
Other	Educational research conducted in educational settings

* In the brief description, provide the Research Supervisor's name, UAA department, and contact information.

4. OTHER HUMAN SUBJECT REVIEW INFORMATION

Information	Response (if applicable)
Is this proposal being reviewed by another ethics committee?	No
Name of Committee	N/A

Institution	N/A
Contact Person	N/A
Email Address	N/A
Phone Number	N/A

Place an “X” in the first column to indicate the status of review of this project by another ethics committee.

	Review Status	Explanation (if required)
	Application has not been submitted.	N/A
	Application is currently under review.	N/A
	Application has been approved.	N/A Please include a copy of the approval document in the IRBNet package.
	Other	N/A

5. ABSTRACT

Explain the research project in **lay language** that can be easily understood by someone who is not an expert in your field. The abstract must include: 1) A brief summary of the research question; and 2) a brief description of the procedure.

Maximum 150 words.

Many students come into an engineering program lacking a strong commitment to stay in an engineering program and to graduate with an engineering degree. For students to accomplish the challenging goal of graduating in engineering requires a strong commitment and changes in behaviors and attitudes. To strengthen the commitment of the freshman engineering students an innovative project will be implemented as part of the ENGR A151 "Introduction to Engineering Course". Students will be asked to "design" their process to become a "World-Class Engineering Student" in a semester long project accompanying the lecture (title of project: Design your Process for Becoming a "World-Class" Engineering Student). This study will investigate if turning the task of designing their individually tailored learning process over to first-year engineering students will have a significant impact on their academic success.

6. BRIEF RATIONALE AND OBJECTIVES

Maximum 500 words for all three responses.

Required Information
Rationale for study grounded in peer reviewed literature in your discipline:
There is a current concern about the growing need for more engineers in the U.S., and therefore freshman engineering student retention needs to be improved. A national study conducted by Michelle J. Johnson and Sheri D. Sheppard [1] shows that over 30% of freshman engineering students do not finish with a degree. Even more concerning is that only 8% of all students enrolling in a 4 year college chose an engineering program. This demonstrates the importance to focus on freshman engineering education and enhancing the students' commitment to graduate with an engineering degree.

Approximately 100 students start each semester at the School of Engineering at the University of Alaska Anchorage. The goal of the current study is to improve these new engineering students' chance of continuing in the engineering program and succeeding.

A recent study on why students stay in engineering has shown that increasing the freshman student's academic confidence helps the student adjust to the rigorous engineering curriculum [2]. In another study, students ranked "drive and motivation" as one of the top influences to believing they could succeed [3]. Successful minority retention programs have focused on community building, academic success skills, personal development, professional development, and orientation in a freshman introductory engineering course [4]. Therefore, it is the hypothesis of this study that having freshman engineering students design their individually tailored learning process as part of a semester long project in the setting of a student success focused introduction to engineering course will have a significant impact on their academic success by improving the students' confidence and motivation to succeed in engineering.

1. Veenstra, Cindy P., Dey, Eric L., Herrin, Gary D., "A Model for Freshman Engineering Retention", AEE, Volume 1, Issue 3, Winter 2009
2. Meyers, Kerry L., Silliman, Stephen, E., Gedde, Natalie, L., Ohland, Matthew, W., "A comparison of engineering students' reflections on their first year experiences.", J. Engineering Education, April 2010
3. Hutchison, Mica A., Follman, Deborah K., Sumpter, Melissa, Bodner, George M., "Factors influencing the self-efficacy beliefs of first year engineering students", J. Engineering Education, January 2006
4. Landis, R. B., "Student Development: An Alternative to 'Sink or Swim'", Proceedings of 1994 ASEE Annual Conference, June 1994

<p>State your research question and hypotheses</p>	<p>How can the retention and academic success of engineering students be strengthened at the freshman level?</p> <p>Having freshman engineering students design their individually tailored learning process as part of a semester long project in the setting of a student success focused introduction to engineering course will have a significant impact on their academic success.</p>
<p>Explain your research design/approach (e.g., quantitative, qualitative, experimental, survey, focus group, etc.). If applicable, respond to the following questions:</p> <p>a) How many groups are you collecting data from?</p> <p>b) Is there random assignment to the groups?</p> <p>c) Is there an experimental manipulation? If yes, explain why. A description of the stimulus or the manipulation can be explained in the summary of procedures.</p>	<p>The semester long project "Design your Process for Becoming a 'World-Class' Engineering Student" requires all students in ENGR A151 to write a ca. 10 page paper. The papers of consenting students will be used as a source as well as surveys, GPA, Calculus 1 grades, and future enrollment information to evaluate the impact of the project on the students academic success in the engineering program.</p> <p>Specifically, to establish a baseline, current (Fall 2012) junior and senior engineering students will be asked to participate in a survey. A similar survey will be given to consenting students at one year, and four years after they have taken ENGR A151. An end of the semester survey will also be used for those student in ENGR A151. GPA, calculus 1 grade, and enrollment data of the consenting students will be used in addition as a measurement of academic success.</p>

7. RESEARCH METHODOLOGY

DETAILED DESCRIPTION OF PROCEDURES

Required Information	
Provide a brief summary of procedures in lay language (no more than 500 words):	
<p>Students will be asked in an Introduction to Engineering course to "design" their process to become a "World-Class" Engineering student. At the end of the semester students need to hand in a ca. 10 page paper with their personal "design", which will include topics like strengthening their goal to graduate in engineering, changes in their behavior and/or attitudes students perceive are necessary to be successful to graduate. Papers of consenting students will be analyzed and students will be given a survey at the end of the semester to evaluate how they perceive how the project will help them (or not) to be successful in pursuing a degree in engineering. To have a comparison, current (Fall 2012) junior and senior students, which have not taken an Introduction to Engineering course with a project as will be implemented in the Fall 2012 and consequence semesters, will be given a survey. The same survey will be given to the consenting students who "designed" their process to become a "World-Class" Engineering student after one, two and four years. Comparisons between the surveys will allow an objective measurement of the impact of the project.</p>	
Description of the location where the research will be conducted	<p>The assigned classroom (or classrooms if more than one section is taught) at the UAA campus for ENGR A151. Surveys will be either conducted in the classroom or online.</p> <p>If not a UAA location, authorization allowing this research to be conducted at that location must be included in your IRBNet package.</p>

RESEARCH METHODS AND TOOLS

Check all that apply with an "X". Include in your IRBNet package all questionnaire(s), interview guides, and focus group questions.

Data Collection Methods or Instruments	
X	Questionnaires
	Interviews
	Observations
	Focus Groups
X	Archival Data/Records Review: If your project utilizes academic, medical, or other records, please describe the data, provide documentation of official permission allowing you access to the data in your IRBNet package.
	Apparatus/Measuring Equipment or Device

Archival Data/Records Review	Response (if applicable)
If you are utilizing archival or existing data, indicate the dates the data were collected. These data must exist at the time of your IRBNet submission.	Archival academic records will be used to determine the GPA, calculus 1 grade, and subsequent enrollment in an engineering discipline after their first year of college, for students who entered UAA as an engineering (or pre-engineering) major during the Fall 2010 and Fall 2011 semesters. The data were collected after the 2010/11 academic year, after the 2011/12 academic year and fall 2012.

<p>If the data are records based (e.g., medical records, legal documents), provide a list of the variables being extracted from the data.</p>	<p>N/A</p>
<p>If consent form is not available or if consent was not needed for the original data collection, please provide a brief explanation.</p>	<p>A consent form is not needed for the archival data because all data collected and published will be in aggregate form without any identifying features.</p>

8. SUBJECT SELECTION AND RECRUITMENT:

Required Information	Response
<p>a. Maximum number of research participants and a brief rationale for that number</p>	<p>The current (Fall 2012) total number of students enrolled in ENGR A151 is 112. The anticipated class size for the Spring 2013 semester is of the same magnitude.</p>
<p>b. Description of participants, rationale for their participation, and inclusion criteria. (Indicate age range, gender, cultural background or if specific populations will be chosen, e.g., prisoners, pregnant women, Alaska Natives)</p>	<p>Participants are students enrolled in ENGR A151. For the baseline data current (Fall 2012) junior and senior engineering students will be asked to participate in a survey.</p>
<p>c. Description of groups or types of individuals that you are intentionally excluding, rationale for exclusion, and exclusion criteria</p>	<p>There will be no exclusions.</p>
<p>d. Description of recruitment process and recruitment materials</p>	<p>All students enrolled in ENGR A151 will be asked for their consent to participate in the evaluation activities. All current (Fall 2012) junior and senior students will be asked to participate in a survey. There are no other restrictions. Please submit a copy of recruitment materials and messages in your IRBNet package.</p>
<p>e. Explanation of how recruitment is not burdensome or coercive to participants</p>	<p>Since a student is recruited by his/her enrollment in ENGR A151 there is no additional burden. All current (Fall 2012) junior and senior students will be invited by email to participate in a survey which does not pose an additional burden.</p>
<p>f. Description of plans (if any) to encourage the recruitment of minorities and women</p>	<p>There are no specific plans to recruit minorities and women; all students will be asked to participate.</p>

9. BENEFITS, INCENTIVES AND COMPENSATION, COSTS, AND RISKS

Note: Consent forms should reflect any risks or compensation described below.

Question	Response
<p>a. Describe potential benefits (e.g., therapeutic or unique self knowledge) that individuals may receive from</p>	<p>There are no potential benefits to the students related to their participation in the research/evaluation.</p>

participating in this research	
b. Describe what new information may be learned from this research	Evaluation of the impact, short-term and long term, on engineering student academic success when freshman engineering students are asked to design their individually tailored learning process as part of a semester long project in the setting of a student success focused introduction to engineering course.
c. Describe incentives to encourage individuals to participate in this research (including monetary or other compensation, thank you gifts, course or other academic credit, lotteries, etc.)	No compensation is offered to ENGR A151 students. A gift card raffle (value \$50) will be used to encourage current (Fall 2012) junior and senior students to participate in an online survey.
d. Describe costs (time, monetary or other) for participants in this research	The only cost to students would be the small amount of time, not more than 30 minutes per survey, necessary to complete surveys; they will not be required to do any extra work.
e. Describe potential harms or discomforts (physical, psychological, social) for participants in this research	There are no discomforts expected as a result of student participation in the evaluation component of the project. The only other discomforts are those that would be reasonably expected in any college course, and these discomforts are related to the class, not the evaluation.
f. Describe what you will do to minimize potential harms or discomforts to participants in this research	All students will be assured that they do not have to consent to participate in this study and that their work will not be used beyond regular classroom evaluation if they do not consent, and that they do not have to answer any extra evaluation or survey questions related to the research study if they do not consent.
g. Describe any potential harms to the culture or society that is the subject of this research	There are no anticipated potential harms.
h. Describe what you will do to minimize potential harms to the culture or society that is the subject of this research	There are no anticipated potential harms.

10. PARTICIPANT CONSENT / ASSENT

Unless a waiver is requested and granted, all participants should be fully informed about the research (purpose, benefits and potential harms from participation, procedures, duration of participation, and special accommodations for language or comprehension), informed consent shall be documented by a written and signed consent form and the participant shall be given a copy of the signed form. The recommended reading level for consent documents is the 8th grade. Guidelines and examples for consent/assent forms can be found at <http://www.uaa.alaska.edu/research/ric/irb/documents.cfm>. A copy of the consent documents must be included in the IRBNet package. Please submit these documents as a Word document or text file.

Consent	Description
Describe the process of obtaining consent to participate in this research	Consent forms will be handed out to each student registered for ENGR A151. Junior and Senior students will have the option to consent or not at the beginning of the survey; if not consenting students will not gain access to the survey.
If the participants are minors, describe the process of obtaining assent to participate	Participants in these courses are expected to be over the age of 18.

in this research	
Describe how you will communicate to potential participants that their participation is voluntary and that they may withdraw from the research at any time without penalty	The following appears in the consent form: "Your decision to allow us to use your work in this class, including your project paper, current and future GPA information, and subsequent surveys responses for research purposes is completely voluntary, and will in no way affect your treatment in this course or at UAA. Confidentiality will be maintained by removing your name and/or other identifiers from any of the work or GPA information that we will use. Therefore, we will not attach your name, address, or any other identifiable information about you to any of your responses, or to any reports or publications describing the results of this study."
Describe if there was any deception involved in the generation of archival data, or if there is any deception involved in the consent process prior to data collection	N/A

Place an "X" in the first column if you requesting special accommodations to consent for this research.

	Request for Special Consent Procedures	Justification
X	a. Elements of informed consent are presented orally and documented through a short written consent form; the process shall be documented by a witness	This applies to ENGR A151 students. In your IRBNet package, provide a written summary of what is to be said to the potential participant and a short form written consent document
X	b. Electronic acknowledgement of informed consent (e.g., SurveyMonkey)	This applies to current (Fall 2012) junior and senior engineering students. In your IRBNet package, include the language from the online survey which indicates acknowledgment of informed consent.
X	c. Waiver of the requirement for documentation (written, audio or video) of informed consent	This applies to current (Fall 2012) junior and senior engineering students, since study participation presents minimal risk of harm to the subject, and the research involves no procedures requiring consent outside the context of participation in the study, e.g., no identifying information will be recorded for the electronic survey, and there will be no follow up.
	d. Waiver of some or all of the elements of consent	
	e. Approval of reading level greater than 8 th grade in consent documents	
	f. Approval for inclusion of participants whose primary language is not English	
	g. Approval for inclusion of adults with diminished cognitive capacity	

11. DATA STORAGE AND RETENTION

Required Information	Description
a. Describe how the data will be collected or recorded (e.g., <i>paper instruments, electronic records, field notes, audio/video recordings, notes, etc.</i>)	Data will be collected during regularly scheduled class times using paper instruments and electronic records (online survey).
b. Describe who will have access to the data	All data collected will be accessible to the principal investigators, and, in anonymous form, to collaborators of the research study.
c. Describe how you will maintain confidentiality of the data	Course work gathered from students, grades and GPA information will be stripped of identifiers. Surveys, if containing identifiers, will be stripped of identifiers.
d. Do you have a federal Certificate of Confidentiality for this research?	N/A
e. Describe your plans for retention of data, where it will be stored, how long it will be stored, who will be responsible for maintaining and securing it, how it will be destroyed and when it will be destroyed	Data will be kept by the principal investigators for 3 years after the end of the project. Data will be stored in each investigator's office or in the case of surveys submitted electronically on each investigator's computer password protected. Data on paper will be shredded 3 years after the end of the project, electronically stored data will be securely and permanently erased.
f. Describe your plans for using the data you collect (e.g., published in journal or equivalent, non-published written report, presented at conference or equivalent, archive only)	Conference proceedings and presentation as well as journal publications.
g. Describe your plans for sharing the data and results with the community or population from whom the data were collected	Through publication(s) mentioned in part f.
h. Describe how you will transfer, communicate and share data among research team members, including description of encryption or security protocols	The data will be shared in electronic form between the principal investigators, and between collaborators stripped of any identifiers, protected by password.
i. Describe where and how consent documents will be stored	Paper based consent forms will be stored in the principals investigators offices on the UAA campus, electronic consent (this applies only to the survey given to the current (Fall 2012) junior and senior engineering students) will be stored electronically on the computers of the principal investigators, protected by password.

12. SPECIAL PARTICIPANTS AND DATA CONSIDERATIONS:

a. PRINCIPLES FOR THE CONDUCT OF RESEARCH IN THE ARCTIC

In the table below, explain how your research proposal is responsive to the NSF Principles for the Conduct of Research in the Arctic (if applicable – see <http://www.nsf.gov/od/opp/arctic/conduct.jsp>).

b. HIPAA

If your research project involves the use of restricted private health information, please view IPAA information at <http://www.uaa.alaska.edu/research/ric/irb/Resources.cfm>, and explain in the table below how your proposal is responsive to these requirements.

c. REQUIRED REPORTING OF ABUSE OR NEGLECT OF CHILDREN AND/OR VULNERABLE ADULTS

If your research has the potential to uncover actual or suspected cases of abuse or neglect of children or vulnerable adults, please consult the appropriate Alaska statute (47.17 Child Protection) to determine requirements for reporting such information at <http://www.legis.state.ak.us>. Please indicate in the table below how you will explain those requirements for reporting to potential participants.

d. FERPA

Family Educational Rights and Privacy Act, FERPA, (Title 34, Part 99 of the CFR). The regulations provide that educational agencies and institutions that receive funding under a program administered by the U.S. Department of Education must provide students with access to their educational records, an opportunity to seek to have the records amended, and some control over the disclosure of information from the records. With several exceptions, schools must have a student’s consent prior to the disclosure of educational records. In the table below, explain how your research is responsive to FERPA provisions.

e. SPECIAL PROTECTIONS FOR VULNERABLE POPULATIONS.

When applicable, researchers must document that additional protections of subpart B (Additional Protections for Pregnant Women, Human Fetuses and Neonates Involved in Research), subpart C (Additional Protections Pertaining to Biomedical and Behavioral Research Involving Prisoners as Subjects), or subpart D (Additional Protections for Children Involved as Subjects in Research) of 45 CFR part 46 have been met.

Place an “X” in the first column to indicate all of the following that are applicable to this research

	To Consider	Response
	a. Principles for the Conduct of Research in the Arctic	N/A Please explain how your research proposal is responsive
	b. HIPAA	N/A
	c. Required reporting of abuse or neglect for children or vulnerable adults	N/A
X	d. FERPA	Any identifiers will be removed from the data. And all academic record data will be collected as aggregate data and will have no student identifiers.
	e. Special protections for vulnerable populations	N/A