ARIZONA STATE UNIVERSITY

GENERAL STUDIES COURSE PROPOSAL COVER FORM

Course information:

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

Academic Unit: **Human Systems Engineering** Department: **The Polytechnic School**

Subject: **EGR** Number: **322** Title: Cognition and Human Systems (to be HSE 324 when new prefix is approved) Units: 3

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

Is this a shared course? (choose one) If so, list all academic units offering this course: No

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 Phyllis.Lucie@asu.edu or Lauren.Leo@asu.edu.

Submission deadlines dates are as follow:

For Fall 2015 Effective Date: October 9, 2014

For Spring 2016 Effective Date: March 19, 2015

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, Arts and Design core courses (HU)
- Social-Behavioral Sciences core courses (SB)
- Natural Sciences core courses (SQ/SG)
- Cultural Diversity in the United States courses (C)
- Global Awareness courses (G)
- Historical Awareness courses (H)

A complete proposal should include:

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

Respectfully request that proposals are submitted electronically with all files compiled into one PDF. If necessary, a hard copy of the proposal will be accepted.

Contact information:

Name: Nancy J. Cooke Phone: 480-727-5158

Mail code: 2880 E-mail: ncooke@asu.edu

Department Chair/Director approval: *(Required)*

Chair/Director name (Typed): Ann McKenna Date: 4/30/14

Chair/Director (Signature): Ann McKenna

Rev. 1/94, 4/95, 7/98, 4/00, 1/02, 10/08, 11/11/ 12/11, 7/12, 5/14

Arizona State University Criteria Checklist for

SOCIAL-BEHAVIORAL SCIENCES [SB]

Rationale and Objectives

Social-behavioral sciences use distinctive scientific methods of inquiry and generate empirical knowledge about human behavior, within society and across cultural groups. Courses in this area address the challenge of understanding the diverse natures of individuals and cultural groups who live together in a complex and evolving world.

In both private and public sectors, people rely on social scientific findings to consider and assess the social consequences of both large-scale and group economic, technological, scientific, political, ecological and cultural change. Social scientists' observations about human interactions with the broader society and their unique perspectives on human events make an important contribution to civic dialogue.

Courses proposed for a General Studies designation in the Social-Behavioral Sciences area must demonstrate emphases on: (1) social scientific theories, perspectives and principles, (2) the use of social-behavioral methods to acquire knowledge about cultural or social events and processes, and (3) the impact of social scientific understanding on the world.

Revised April 2014

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

ASU--[SB] CRITERIA

A SOCIAL-BEHAVIORAL SCIENCES [SB] course should meet all of the following criteria. If not, a rationale for exclusion should be provided.

YES	NO		Identify Documentation Submitted
☑	☐	**1.** Course is designed to advance basic understanding and knowledge about human interaction.	see syllabus
☑	☐	**2.** Course content emphasizes the study of social behavior such as that found in**:** • ANTHROPOLOGY • ECONOMICS • CULTURAL GEOGRAPHY • HISTORY	see syllabus
☑	☐	**3.** Course emphasizes: **a.** the distinct knowledge base of the social and behavioral sciences (e.g., sociological anthropological). **OR** **b.** the distinct methods of inquiry of the social and behavioral sciences (e.g., ethnography, historical analysis).	see syllabus
☑	☐	**4.** Course illustrates use of social and behavioral science perspectives and data.	see syllabus
		THE FOLLOWING TYPES OF COURSES ARE EXCLUDED FROM THE [SB] AREA EVEN THOUGH THEY MIGHT GIVE SOME CONSIDERATION TO SOCIAL AND BEHAVIORAL SCIENCE CONCERNS: • Courses with primarily arts, humanities, literary or philosophical content. • Courses with primarily natural or physical science content. • Courses with predominantly applied orientation for professional skills or training purposes. • Courses emphasizing primarily oral, quantitative, or written skills.	

Course Prefix	Number	Title	General Studies Designation
HSE	322	Cognition and Human Systems	SB

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	Our cognitive systems are crucial to human behavior; topics include how we perceive and remember, make decisions, and interact in teams and with/through computers	In syllabus, see weeks 2, 5, 8, 10, and 13
2	The topics include many social and behavioral disciplines, notably psychology, communication, and economic decision making	Material in weeks 1-5 include basic psychological processes, while weeks 9 and 10 emphasize human interaction, learning and training
3	Methods of inquiry include testing methods that are used in employee evaluation, analyses of human interaction and situational awareness, and evaluating consumer and environmental behavior	Although social science methods are included throughout, the final 5 weeks of the class pays particular attention to methods of inquiry and implications for policy
4	The perspectives of cognitive science enrich our understanding of product design, social policy, design of learning and training methods, and many other relevant areas.	Again, while the course is infused with such material, everything from week 5 onward emphasize the applications of such perspectives to real world problems

EGR 322: Course Description

Human cognition and how it bears on the design of technological and social systems. Although the focus will be on applications, the student will be required to delve into the basic literature that informs these applications, and produce a literature review that draws on both applied and theoretical work. Many weeks will involve a hand-on experience with a method or technique, and the weekly quizzes will emphasize critical thinking about these examples.

Syllabus
Cognition and Human Systems

Instructor: D. Vaughn Becker
Office: 150F
Room Number: SANCA 151

Course: EGR 322
Days: T/Th
Time: 12:15-1:30

Office Hours: T/TH 1:00-2:00; TBA
Email: vaughn.becker@asu.edu **Subject heading:** EGR 322

Enrollment requirements: Prerequisite(s): EGR 103 and junior or senior standing

Text:
E-BOOK: Handbook of Applied Cognition, 2nd Edition. Francis T. Durso (Editor), Raymond S. Nickerson (Associate Editor), Susan T. Dumais (Associate Editor), Stephan Lewandowsky (Associate Editor), Timothy J. Perfect (Associate Editor)
ISBN: 978-0-470-01534-6

Course Description

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Prerequisites: EGR 103 or PSY 101 and junior or senior standing

Course Objectives

This course has several primary objectives:

1. To introduce students to the application of cognitive research to human systems.
2. To introduce students to the major inferential methods used in analysis of human systems data.
3. To introduce students to the primary empirical literature in applied cognition, to search for additional information on a topic of their choosing, and to teach students to write a literature review.

Learning Outcomes:
Upon completion of this course, students will be able to:

1. Understand and critically appraise the basic literature in cognitive science.
2. Apply this basic science and its perspectives to the design and analysis of human and technological systems.
3. Evaluate the current design of products and human and technological systems in light of the findings of cognitive science,

and suggest new directions for optimizing these products and systems.

Grading Requirements

Your grade in this class will be based on your performance on three types of assignments. These requirements will include weekly quizzes, a research paper, and final presentation on you results.

Quizzes

This class will consist of weekly quizzes. These quizzes will consist of multiple choice questions and one application/ short essay question. The quizzes will be administered in class following the lecture. You will have **15 minutes** to complete each quiz.

Literature Review Paper

The class will culminate in a 10-12 page paper that is a critical analysis of the literature in APA format with at least 15 references (primarily journal articles). You will be required to turn in parts of this paper for comments during the course. At the end of the semester, you will turn in the final corrected paper for a grade. Note that students be should not use significant amounts of text or simple paraphrasing in writing the review, and that the assignment will be checked using SafeAssign for plagiarism and copying.

The final literature review will be due on December 5th.

Peer review

It is highly recommended that you have a classmate review each section of your paper before you turn it in. You will receive 1 bonus point for having your paper reviewed. Your peers will need to critically read your paper section and give feedback via the comment function in Microsoft word. When you turn in your section, you will need to identify the student that reviewed the section of the paper.

Final Presentation

The final presentation will consist of a 15 minute talk on your literature review using power point. (You **cannot** read your paper to the class.)

Grading policy

Your grade will be based on the following weightings. 300 points

Quizzes: 120 points

- 10 points each
- Drop lowest 2 quizzes

Literature Review: 140 points

- Prospectus: 20 points
- First draft: 40 points
- Final paper: 80 points

Final Presentations: 40 points

Your course grade will be assigned according to the following scale:

Letter grade	Points
A	270-300
B	240-269
C	210-239
D	180-209
E	179

Standard rules of rounding will apply, so .5 and above will be rounded up to the next whole number. There will be no +/- grades given.

Missed Assignments

There will be **no makeup assessments** for this class except in specific circumstances (i.e. religious practices and university-sanctioned activities). The course has built in drop grades to cover missed assignments. If for some reason, you must miss multiple assignments make sure that you contact me before the exam.

Academic Integrity

Students will be held to the statutes of academic integrity put forth in the "Student Code of Conduct" that can be found in the Student Handbook.
https://students.asu.edu/srr/code
Please review the Student Academic Integrity Policy on Academic Integrity and Plagiarism at http://www.asu.edu/aad/manuals/acd/studentacint.html

Please note that the University policies against Disruptive, Threatening, and Violent behavior will be enforced. Please review these in the Student Services Manual, SSM 104–02; http://www.asu.edu/aad/manuals/ssm/ssm104-02.html

Additionally, the use of use of pagers, cell phones, and recording devices is not permissible within the classroom without explicit consent from the instructor.

Before each quiz, make sure to put away all notes and preparatory materials, turn off all pagers and cell phones, and removed all hats. Testing irregularities could be construed as cheating by the instructor.

The course content, including lectures, is copyrighted material and students may not sell notes taken during the conduct of the course (see ACD 304–06, "Commercial Note Taking Services" for more information).

Students with Disabilities

Students registered with the Disability Resource Center (DRC) are strongly encouraged to talk to the instructor about any assistance that might be needed for this class. I am happy to make accommodations as needed. Please submit appropriate documentation from the DRC.

Class Schedule

We will try to keep to the schedule below. Test dates are subject to change as the semester progresses based on the needs of class and topic completion.

The information in the syllabus, other than grade and absence policies, may be subject to change with reasonable advance notice.

Class Schedule

Week	**Topic and readings**	DUE	Method
	Section 1 Applied Cognition Fundamentals.		
Week 1	Chapter 1 Applied Cognitive Psychology in the Context of Everyday Living (*Wendy A. Rogers, Richard Pak & Arthur D. Fisk*).		
Week 2	Chapter 2 Attention (*David L. Strayer & Frank A. Drews*).		Flanker Task
	Chapter 3 Working Memory (*Aysecan Boduroglu, Meredith Minear & Priti Shah*).		Memory scanning task
Week 3	Chapter 4 Knowledge and Expertise (*Stephan Lewandowsky, Daniel Little & Michael L. Kalish*).		Pathfinder Analysis
	Chapter 5 Episodic Memory (*Scott D. Gronlund, Curt A. Carlson & Debra Tower*).		
	Chapter 6 Metamemory (*John Dunlosky, Michael J. Serra & Julie M. C. Baker*).		
Week 4	Chapter 8 Decision-Making (*Winston R. Sieck & Gary Klein*).		
	Chapter 9 Human Error: Trick or Treat? (*Erik Hollnagel*).		Analysis of errors from week 2
Week 5	Chapter 7 Comprehension and Situation Awareness (*Francis T. Durso, Katherine A. Rawson & Sara Girotto*).	**literature review proposal**	
	Chapter 10 Team Cognition (*Nancy J. Cooke, Jamie C. Gorman & Jennifer L. Winner*).		
	Section 2 Applied Cognition in Human–Technical Systems.		
Week 6	Chapter 11 Industrial Systems (*Neville Moray*).		
	Chapter 12 Patient Safety in Health Care (*Vimla L. Patel & Jiajie Zhang*).		
	Chapter 13 Skill in Sport (*Bruce Abernethy, Jonathan P. Maxwell, Robin C. Jackson & Richard S. W. Masters*).		speed accuracy trade-offs
Week	Chapter 14 Aviation (*Christopher Wickens*).		

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	Chapter 15 Driving (*Geoffrey Underwood, David Crundall & Peter Chapman*).		Dot probe distraction
	Chapter 16 Automated and Interactive Real-Time Systems (*Bernd Lorenz & Raja Parasuraman*).		
Week 8	Chapter 17 Cognitive Models of Human–Information Interaction (*Peter Pirolli*).	**Paper draft**	
	Chapter 18 Personal Information Management (*William Jones & Brian H. Ross*).		
Week 9	Chapter 19 Computer-Supported Cooperative Work (*Gary M. Olson & Judith S. Olson*).		
	Chapter 20 Online Courses (*Ruth H. Maki & William S. Maki*).		
	Section 3 Applied Cognition in Human–Social Systems.		
Week 10	Chapter 21 Instruction (*Lindsey E. Richland, Marcia C. Linn & Robert A. Bjork*).		
	Chapter 22 Cognitive Rehabilitation (*Barbara A. Wilson*).		
Week 11	Chapter 23 Personnel Selection and Testing (*Margaret E. Beier & Phillip L. Ackerman*).		survey design
	Chapter 24 Mental Illness and Mental Health (*Megan E. Hughes, Catherine Panzarella, Lauren B. Alloy & Lyn Y. Abramson*).		
Week 12	Chapter 25 Media (*Richard Jackson Harris, Elizabeth T. Cady & Christopher P. Barlett*).		
	Chapter 26 Consumer Psychology (*Joseph W. Alba & J. Wesley Hutchinson*).		
	Chapter 27 Protection of the Environment (*Raymond S. Nickerson*).		
Week 13	Chapter 28 Juror Decision-Making (*Ryan J. Winter & Edith Greene*).		Recognition memory
	Chapter 29 Eyewitness Testimony (*Daniel B. Wright & Graham M. Davies*).		
	Chapter 30 False Memories (*Giuliana Mazzoni & Alan Scoboria*).	**Final Paper due**	
Week 14	CLASS PRESENTATIONS		
Week 15	CLASS PRESENTATIONS		

Handbook of Applied Cognition, 2nd Edition. Francis T. Durso (Editor), Raymond S. Nickerson (Associate Editor), Susan T. Dumais (Associate Editor), Stephan Lewandowsky (Associate Editor), Timothy J. Perfect (Associate Editor)
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