New Course Request

Indiana University
South Bend Campus

Check Appropriate Boxes: Undergraduate credit [X] Graduate credit [ ] Professional credit [ ]

1. School/Division: College of Liberal Arts & Sciences 2. Academic Subject Code: COGS-B

3. Course Number: 190 (must be cleared with University Enrollment Services) 4. Instructor: Various

5. Course Title: Human Behavior and Social Institutions "How the mind works: explorations in cognitive science"
Recommended Abbreviation (Optional)

(Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Spring 2010

7. Credit Hours: Fixed at ___3___ or Variable from ____________ to ____________

8. Is this course to be graded S-F (only)? Yes ___ No [X]

9. Is variable title approval being requested? Yes [X] No ___

10. Course description (not to exceed 50 words) for Bulletin publication: Develops insights into human nature, the nature of social institutions, the social processes that have shaped the world of the 21st century. In an interdisciplinary way, introduces the distinctive perspectives of the social sciences, emphasizing frameworks and techniques used in explaining causes and patterns of individual and institutional behavior.

11. Lecture Contact Hours: Fixed at ___3___ or Variable from ____________ to ____________

12. Non-Lecture Contact Hours: Fixed at ___0___ or Variable from ____________ to ____________

13. Estimated enrollment: ___30___ of which ___0___ percent are expected to be graduate students.

14. Frequency of scheduling: Annually __ Will this course be required for majors? Required only for minors (each spring)

15. Justification for new course: The course will meet the needs of the campuswide general education program. We also hope it will attract students to the cognitive science minor.

16. Are the necessary reading materials currently available in the appropriate library? Yes ___

17. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.

18. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant.

19. A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by: [Signature] Date 07/13/09

Dean of Graduate School (when required) Date

Approved by: [Signature] Date 9/1/09

University Enrollment Services

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.

UPS 724 University Enrollment Services Final—White; Chancellor/Vice-President—Blue; School/Division—Yellow; Department/Division—Pink; University Enrollment Services Advance—White
COURSE DESCRIPTION
What exactly is the human mind? How does it relate to the human brain? How does it make possible human behaviors, such as perception, learning, remembering, physical movement, social cooperation, and even loving? In this course, we will investigate such questions through the lens of cognitive science. We will also consider implications of mind-related inquiry. For example: Can the right program running on a sufficiently powerful computer be considered a mind? Should ‘smart drugs’ and brain implants be used by those with ‘healthy minds’ in order to augment mental performance? What happens when an intelligent lethal weapon is deployed for warfare, while humans are completely ‘removed from the loop’ which determines its actions?

COURSE GOALS
In this course:
- You will gain understanding of the current framework (CRUM) for studying the human mind, as well as extensions of and challenges to it. For each major approach (e.g. symbolic logic, rules, connectionism, etc.) within this framework, we will weigh evidence from disciplines as diverse as philosophy, cognitive psychology, artificial intelligence, neuroscience, etc., in order to evaluate the strength of the approach to understanding the human mind.
- You will develop an appreciation of the methodologies and tools of various component disciplines (e.g. philosophy, cognitive psychology, artificial intelligence, neuroscience, etc.) of cognitive science. By the end of the course, you will be able to critically assess and integrate evidence (for a given aspect of mind) that has been collected and analyzed through use of these multidisciplinary methodologies and tools.
- You will form opinions on ancient philosophical debates such as the ‘mind/body problem’, as well as on more modern philosophical debates such as whether a sufficiently ‘intelligent’ machine could ever be ‘conscious’ (strong AI). Such debates often lead to ethical implications. For example, if we unlock the mystery of how some brain circuit facilitates (mental) problem solving, would it be ethical for healthy minds to use drugs that target this brain circuit in order to gain a problem solving advantage over others? If a machine really ever could be conscious, should we treat it humanely? If sufficiently ‘intelligent’ robots can be developed, conscious or not, should we entrust them with ‘care’ decisions for the elderly and ‘kill’ decisions on the battlefield?

REQUIRED TEXTS
- Additional required course readings are on reserves with Schurz (IUSB) Library. Course password will be given in class.

CONTACT INFORMATION
Professor: Michael R. Scheesele
Office: Northside Hall, room 333
Phone: (574) 520-4815
e-mail: mscheess@iusb.edu
URL: http://www.cs.iusb.edu/~mikes/

OFFICE HOURS
Tuesdays and Thursdays: 2:30-5pm
Also by appointment.
DISABILITIES NOTE
"If you need adaptations or accommodations because of a disability, if you have emergency medical information to share with me, or if you need special arrangements in case the building must be evacuated, please speak with me as soon as possible. Students also may call Disabled Student Services (520-4832) for additional information about services available at IUSB."

ACTIVITIES
- **class participation**: 10%
  - includes attendance, punctuality, preparation for/respectful participation in class activities
- **2 writing exercises**: 20% (10% per exercise)
- **semester project**: 20%
  - This will take one of two forms: (1) a summary and critique of existing research in some area of cognitive science, or (2) a research proposal for solving/answering an open problem/question in cognitive science. For either type of project, you will be required to meet with me at least twice outside of class. Following are the milestones for either type of project (further details and dates will be given later):
    - Choose project type and topic. Meet with me to discuss.
    - Develop an outline for the paper or proposal. Meet with me to discuss.
    - Complete a rough draft of the paper or proposal. I will provide feedback (and may require another meeting outside of class where necessary).
    - Complete paper or proposal.
- **midterm exam**: 25%
- **final exam**: 25%
  - final exam will be cumulative

Final Grade Cutoff Percentages:

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<th>Percentage</th>
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POLICIES
- **Attendance**: You are expected to attend all classes and to be on time.
- **Electronic devices**: Please turn off all electronic devices during class. If you carry a cell phone, either turn it off or set it to vibrate.
- **Assignments**: Each assignment must be turned in **by the start of class on its due date**. To allow grading of assignments in a timely manner, I do not accept late assignments. If you know you will miss class, please make arrangements to hand in your assignment in advance.
- **Incompletes**: I do not give ‘incomplete’ grades as a rule.
- **Plagiarism/Cheating**: First offense: **0% for the assignment or exam**. Second offense: ‘F’ for the course.
Schedule/Reading List – COGS B190 – Spring 2010

Note 1: You should read all selections for a week before the first class period of that week.

Note 2: (M) represents the ‘Mind’ text.

Week 1: Course introduction; history of cognitive science; component disciplines of cognitive science; representation & computation (CRUM) framework.
Readings:
- Ch. 1 (M).

Week 2: Mind-body problem; Philosophical preliminaries.
Readings:
Video (in class):
- Patrick Grim: Philosophy of mind: Living in the material world.

Week 3: Functionalism; strong AI; consciousness.
Readings:
- Ch. 11 (M).
Video (in class):

Week 4: Methodologies and tools for cognitive science: hypothesis testing, computer simulation, single-cell recording, EEG, PET scanning, fMRI. Strengths and weaknesses of methodologies and tools.
Readings:
Writing Exercise #1 due.

Week 5: CRUM: logic-based approach.
Readings:
- Ch. 2 (M).
Project type and topic proposal due. (Make appointment with professor to meet to discuss.)
Week 6: CRUM: rule-based and concept-based approaches.
Readings:
- Chs. 3-4 (M).

Week 7: CRUM: analogy-based and image-based approaches.
Readings:
- Chs. 5-6 (M).

Project: outline due. (Make appointment with professor to meet to discuss.)

Week 8: CRUM: connectionism-based approach.
Readings:
- Ch. 7 (M).

Week 9: Review and evaluation of CRUM framework; midterm exam.
Readings:
- Ch. 8 (M).

MIDTERM EXAM!

Week 10: Extensions of and challenges to CRUM: role of brains and emotions.
Readings:
- Chs. 9-10 (M).

Week 11: Extensions of and challenges to CRUM: bodies, the world, and dynamic systems.
Readings:
- Ch. 12 (M).

Week 12: Extensions of and challenges to CRUM: societies.

Readings:
- Ch. 13 (M).

Project: rough draft due.

Week 13: CRUM framework: review and evaluation.

Readings:
- TBD.

Writing Exercise #2 due.

Weeks 14 and 15: The future of cognitive science: implications and applications for individuals and for society.
- Ch. 14 (M).

Project: final draft due.

Week 16: FINAL EXAM!

In addition to the required readings noted above, I have placed the following optional readings on reserve in Schurz Library: