New Course Request

Indiana University
South Bend Campus

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

1. School/Division: Liberal Arts and Sciences
2. Academic Subject Code: GSCI
3. Course Number: 3657 (must be cleared with University Enrollment Services)
4. Instructor: M. Scheesel & Others

5. Course Title: Computer Vision

Recommended Abbreviation (Optional): (Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Spring 2025

7. Credit Hours: Fixed at 3 or Variable from _______ to _______

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

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

10. Course description (not to exceed 50 words) for Bulletin publication: Fi:C563 or B551, Concepts and methods of machine vision as a branch of artificial intelligence. Basics of digital image processing, Local and global tools for deriving information from image data. Model-based object recognition and scene understanding.

11. Lecture Contact Hours: Fixed at _______ or Variable from ________ to ________

12. Non-Lecture Contact Hours: Fixed at 0 or Variable from ________ to ________

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

14. Frequency of scheduling: every 2 years

15. Justification for new course: To enrich our curriculum and offer courses that take advantage of new faculty expertise

16. Are the necessary reading materials currently available in the appropriate library? Yes [X] No

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: Honec Hooks Date 4/12/04
Department Chair/Division Director

Approved by: Williams Date 5/25/04
Dean

Dean of Graduate School (when required): Curr. 6/24/04

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

UP:724
University Enrollment Services Final—White; Chancellor/Vice-President—Blue; School/Division—Yellow; Department/Division—Pink; University Enrollment Services Advance—White
Course Description:

**B657 Computer Vision (3 cr.)**

(course description adopted from http://www.cs.indiana.edu/Courses/descriptions)

Instructor:

Michael Scheessele and others

Possible Reference Books:

- Computer Vision: A Modern Approach by Forsyth and Ponce
- Other scholarly reading

Possible Software:

- C++, gimp and possibly Matlab

B657 Computer Vision    Feb 23, 2004
Course Objective:
The objective of this course is to provide an overview of the field of Computer Vision. "Hands-on" projects and assignments will introduce students to common techniques used in computer vision and illustrate major topic areas within this field. Given the applied nature of this field, "real world" applications will be described where appropriate.

Topics:
- pinhole cameras; lenses; cameras and the eye; radiometric terminology
- local shading models; point, line and area sources; photometric stereo; interreflections; lightness computations
- color vision
- linear filters; sampling; scale
- edge detection
- texture
- basic multiple view geometry
- stereopsis
- image segmentation
- model-based vision; use of templates

Coursework:
- Several 'hands-on' projects/programming assignments illustrating concepts will be covered in class.
B89 Topics in Graphics and Human Computer Interaction 4 (3 cr.) P. instructor’s permission. Special topics in graphics and human computer interaction. May be repeated for credit with permission.

B90 Graduate Independent Study 4 (4 cr.) P. instructor’s permission. Independent study under the direction of a faculty member, culminating in a written report. May be repeated for credit. The different departmental options for independent study are: Research and Reading, Software System Development, Master’s Research Project, Master’s Thesis Project, and a University Master’s Thesis.

B90 Thesis Readings and Research 6 (6 cr.) Research under the direction of a member of the graduate faculty leading to a Ph.D. dissertation.

Criminal Justice

College of Arts and Sciences

Bloomington

Departmental E-mail: crimja@indiana.edu

Departmental URL: www.indiana.edu/~criminal

Graduate Faculty

Professors: Robert Bockenstedt (Emiritus), Carrieh Rice Myers (Emiritus), Afro-American Studies), Ronald Pepperin (East Asian Languages and Cultures), Leon E. Pettway

Associate Professors: Steven Chermak, Elke Dwyer (History), Jayne Kim, Lee Lankau, William Olson* (Neuroscience), Phillip Penner (Anthropology), Marla Sandsky, Kip Schley, Hillard Trubitt (Emiritus)

Assistant Professor: Arvid Verma* Graduate Advisor: Associate Professor: Steven Chermak, Synancore Hall 310, (812) 855 9325

Degrees Offered: Master of Arts and Doctor of Philosophy

The department offers the opportunity for multidisciplinary graduate degrees in criminal justice that are designed for students coming from a variety of academic backgrounds. A degree in criminal justice may serve as a stepping stone to further graduate work (in fields beyond the award of the Master’s degree) in law school, or to administrative, research, or institutional settings in the criminal justice system or the private sector. The faculty represents a diversity of approaches to criminal justice studies: anthropology, criminal justice, geography, sociology. Students may also study with faculty from other departments and schools who make up the university wide criminal justice consortium.

Special Departmental Requirements

(see also general University Graduate School regulations)

Master of Arts Degree

Admission Requirements: Applicants must submit the following: (1) an official undergraduate transcript; (2) a 3.00 to 4.00 GPA in academic and professional work; (3) scores from the analytical, verbal, and quantitative sections of the GRE; (4) evidence of potential for success in graduate work, as attested by letters of recommendation from those familiar with the applicant’s academic performance (two of the applicant’s three letters must be from faculty members); (5) international TOEFL is required of all foreign students.

Course Requirements: A total of 36 credit hours, of which must be taken in the Department of Criminal Justice. Required are PUB 363, PUB 364, PUB 394, and PUB 395.

Thesis: Optional. Students may earn up to 6 credit hours for a M.A. thesis.

Doctor of Philosophy Degree

Admission Requirements: Applicants must submit the following: (1) an official undergraduate transcript; (2) a 3.00 to 4.00 GPA in academic and professional work; (3) scores from the analytical, verbal, and quantitative sections of the GRE; (4) evidence of potential for success in graduate work, as attested by letters of recommendation from those familiar with the applicant’s academic performance (two of the applicant’s three letters must be from faculty members); (5) international TOEFL is required of all foreign students.

Course Requirements: A total of 90 credit hours beyond the bachelor's degree, of which 20 credit hours are in core courses and at least 30 credit hours in required specializations. The department expects the student to complete 9 credit hours beyond the required core course in each of two areas of specialization within the curriculum and complete a minor, consisting of 6 credit hours beyond the required core course in another area of specialization. The minor may be selected from outside the Department of Criminal Justice. Students are required to complete courses in each of the four substantive fields that the program is organized: PUB 350, PUB 352, PUB 394, PUB 395. All students

A research skill requirement may be satisfied by completing PUB 394 or a research skills course approved by the Director of Graduate Affairs. Students are required for up to 30 credit hours required.

Foreign Language/Research Tool Requirement: One of the following: (1) reading proficiency in one of the languages from those approved by the Department of Criminal Justice or a language demonstrably related to the research program; or (2) the research tool requirement may be satisfied by either 3 credits of advanced research or statistics course work. Students must obtain a list of approved tool-skills courses from the department.

Qualifying Examination: All doctoral students are expected to demonstrate basic proficiency by passing written doctoral examinations in two of the following core areas: (1) nature of crime; (2) criminal justice systems and processes; (3) law and society; and (4) cross-cultural studies.

Disertation Proposal: Dissertations proposals must be submitted only after successfully completing the required qualifying PhD examinations. An oral defense of the dissertation proposal is required.

Final Examination: Oral defense of the dissertation is required.

Ph.D. Minor in Criminal Justice: Students from other departments or schools who wish to minor in criminal justice should consult with the Director of Graduate Affairs, who will ordinarily serve as the minor advisor. The usual requirement for a minor is at least 12 graduate credit hours in criminal justice. PUB 350 and PUB 352 are the remaining two credits elective credits in the department. A Declaration of Minor Form must be submitted to the Director of Graduate Affairs.

Courses

Courses in the 300 and 400 levels listed here are open to graduate students with the approval of the director of graduate affairs in criminal justice and the course instructor.

PUB 363 Criminal Justice Management (3 cr.)

PUB 364 The Family and Formal Control Systems (3 cr.)

PUB 394 Criminal Justice III (3 cr.) A prerequisite to provide an intensive introduction to the basic areas of criminal justice.

PUB 395 Criminal Justice II (3 cr.) Theories of crime and deterrence.

PUB 396 Corrections (3 cr.) Reviews historical and philosophical bases of corrections and systems control.