New Course Request

Indiana University
Indianapolis Campus

Check Appropriate Boxes:
- Undergraduate credit [x]
- Graduate credit [ ]
- Professional credit [ ]

1. School/Division: Science
2. Academic Subject Code: FIS

3. Course Number: 261 (must be cleared with University Enrollment Services)
4. Instructor: H. Blitzer

5. Course Title: Scientific Digital Imaging II
   Recommended Abbreviation (Optional): Sci Digital Image II
   (Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year): Spring/2009

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 [ ] No [x]

10. Course description (not to exceed 50 words) for Bulletin publication:
    This course teaches the basics of image processing for images that may be used for courtroom purposes. Digital imaging methods, following guidelines of the Scientific Working Group on Imaging Technology of the FBI will be utilized to produce high quality, valid and reliable images suitable for courtroom applications.

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: 20 of which 0 percent are expected to be graduate students.

14. Frequency of scheduling: fall/spring Will this course be required for majors? Yes [ ]

15. Justification for new course:
   Course exists in Informatics. This is to transfer ownership.

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. Course overlaps with INFO-1251, which will be discontinued.

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 contacted.

Submitted by: [Signature] Date 1/1/07

Department Chair/Division Director

Dean of Graduate School (when required) Date

Approved by: [Signature] Date 4/23/07

Dean

Chancellor/Vice-President

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
## PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF AN UNDERGRADUATE COURSE (100-400 LEVEL)

### DEPARTMENT
Forensic and Investigative Sciences

### EFFECTIVE SESSION
Spring 2008

### INSTRUCTIONS:
Please check the items below which describe the purpose of this request.

- [x] New course with supporting documents
- [ ] Add existing course offered at another campus
- [ ] Expiration of a course
- [ ] Change in course number
- [ ] Change in course title
- [ ] Change in course credit type
- [ ] 7. Change in course attributes (department head signature only)
- [ ] 8. Change in instructional hours
- [ ] 9. Change in course description
- [ ] 10. Change in course requirements
- [ ] 11. Change in semesters offered (department head signature only)
- [ ] 12. Transfer from one department to another

### PROPOSED:

<table>
<thead>
<tr>
<th>Subject Abbreviation</th>
<th>FIS</th>
<th>Subject Abbreviation</th>
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<tbody>
<tr>
<td>Course Number</td>
<td>261</td>
<td>Course Number</td>
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<tr>
<td>Long Title</td>
<td>Scientific Digital Imaging II</td>
<td>Long Title</td>
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<tr>
<td>Short Title</td>
<td>Sci Digital Image II</td>
<td>Short Title</td>
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**Abbreviated title will be entered by the Office of the Registrar if omitted. (22 CHARACTERS ONLY)**

### CREDIT TYPE

<table>
<thead>
<tr>
<th>Instruction Type</th>
<th>Minutes Per Mfgg</th>
<th>Meetings Per Week</th>
<th>% of Credit Allocated</th>
<th>Delivery Method (Asyn. Or Syn.)</th>
<th>Delivery Medium (Audio, Internet, Live, Text-Based, Video)</th>
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<tbody>
<tr>
<td>Lecture</td>
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<td>Live</td>
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<td>Recitation</td>
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### COURSE ATTRIBUTES:
Check All That Apply

- [ ] Summer
- [x] Fall
- [x] Spring

### CAMPUS(ES) INVOLVED:
- Calumet
- Coll Ed
- Tech State
- INDIANAPOLIS
- N. Central
- W. Lafayette

### COURSE DESCRIPTION (INCLUDE REQUISITES):
This course teaches the basics of image processing for images that may be used for courtroom purposes. Digital imaging methods, following guidelines of the Scientific Working Group on Imaging Technology of the FBI will be utilized to produce high quality, valid and reliable images suitable for courtroom applications.
Scientific Digital Imaging II
Course #1261

Herbert Blitzer
317-356-0245
Email: hblitzer@ifi-indv.org

Jack Jacobia
317-356-0245
Email: jjacobia@ifi-indv.org

Course Description:
This course, by lecture, demonstration and practical "hands-on" training, teaches photographic techniques and advanced methods needed for processing images that might be used for courtroom purposes. The mathematical and scientific principles upon which the methods are based will be reviewed. It is based upon the use of Adobe Photoshop, digital cameras, computers, and scanners. Digital imaging methods, consistent with the guidelines of the Scientific Working Group on Imaging Technology of the Federal Bureau of Investigation will be utilized to produce high quality, valid and reliable images suitable for courtroom related applications. Students completing the course will be prepared to answer probing questions regarding choices of methods and the validity of results and conclusions when giving testimony.

The use and selection of equipment for efficient imaging, as well as the software needed to effectively enhance evidentiary images are addressed. This course is open to students who have successfully completed course #1260 or who can demonstrate that level of competency.

Objective:
Capture evidentiary images with the digital camera and scanners, download the images and use the tools in Adobe Photoshop to enhance the images, while recording a log of all the actions and maintaining the integrity of each image. Archive the primary images and place them in a database for future use in the courtroom.

Topics included are:
- Crime Scene Photography
- Review Downloading Images
- Basic Enhancement
- ICC Profiles
- Contrast/Filtering
- Alternative/Lighting
- Extrapolation Tools
- Calculating Resolution
- RAW Images
- Basic Adjustments/Controls
- Photo Measurements
- Basic Filter Functions
- Curves/Calculations
- Blending modes
- Channels
- Advanced FFT
- Photogrammetry
- Image Sharpness or Resolution
- Photoshop Dynamic Range Rectify Tools
- Compression
- Taking a Digital Photograph
- Standard Operating Procedures

Recommended Equipment:
Digital camera kit
Tripod
Spare batteries for camera and flash (or charger for the flash power system); AC adapters
Course Schedule:

Day One:
- Extrapolation Tools
- Basic Adjustment Controls
- Light Measurements
- Basic Filter Functions
- ACE-V technique
- Photogrammetry
- Image Sharpness or Resolution
- Calculating Resolution

Day Two:
- Crime Scene Photography
- Downloading Images per SWGIT guidelines
- Basic Enhancement
- Photography of evidence

Day Three:
- Color Management
- ICC Profiles
- Contrast/Filtering
- Alternative/Lighting
- Adjusting curve shapes
- Calculations
- Blending modes
- Channels
- Advanced FFT

Day Four:
- Dynamic Range adjustments
- Image Rectification Tools
- Working with RAW images

Day Five:
- Calculating images from chip outputs
- Comparisons between film and digital systems
- Legal considerations
- Courtroom presentations

Day Six:
- Standard Operating Procedures
- General course review
- Course Review
Class Exercises

1. Resolution Exercise
2. Camera Exercise
3. Alternative Light Exercise
4. Advanced Photoshop Exercise
5. Advanced Enhancement Exercise
6. RAW image exercise
7. Final Exercise

Assignment Submission and Guidelines

You will be given adequate time during class to complete your assignments. All grades will be posted by the next class session. Please note: No late assignments will be accepted.

The labs assigned in this class will make up 50% of your final grade. The final exercise and exam makes up 50% of your final grade.

Resolution Exercise
Camera Exercise
Alternative Light Exercise
Advanced PhotoShop Exercise
Advanced Enhancement Exercise
Raw Image Exercise
Final Exercise
Final Exam

Exercises are 50% of your grade
25% of your grade

Grading Scale

Minimum %

100.0  A+
95.0    A
90.0    A-
87.0    B+
83.0    B
80.0    B-
77.0    C+
73.0    C
70.0    C-
67.0    D+
63.0    D
60.0    D-
0.0     F
Academic Misconduct
(Taken from Academic Handbook, 2001 and the Code of Student Rights, Responsibilities, and Conduct)
http://www.life.iupui.edu/Who/Dean/Code

The Academic Handbook states that faculty members have the responsibility of fostering the "intellectual honesty as well as the intellectual development of students... The faculty member should explain clearly the meaning of cheating and plagiarism as they apply to the course... Should the faculty member detect signs of plagiarism or cheating, it is his or her most serious obligation to investigate these thoroughly, to take appropriate action with respect to the grades of students, and in any event to report the matter to the Dean of Students. The necessity to report every case of cheating, whether or not further action is desirable, arises particularly because of the possibility that this is not the student's first offense, or that other offenses may follow it. Equity also demands that a uniform reporting practice be enforced; otherwise, some students will be penalized while others guilty of the same actions will go free." (p. 172).

Academic Misconduct: (from the Code of Student Rights, Responsibilities, and Conduct)

1. Cheating: A student must not use or attempt to use unauthorized assistance, materials, information, or study aids in any academic exercise, including but not limited to, the following:

a. A student must not use external assistance on any "in-class" or "take-home" examination, unless the instructor specifically has authorized external assistance. This prohibition includes, but is not limited to, the use of tutors, books, notes, and calculators.

b. A student must not use another person as a substitute in the taking of an examination or quiz.

c. A student must not steal examinations or other course materials.

d. A student must not allow others to conduct research or to prepare work for him or her without advance authorization from the instructor to whom the work is being submitted. Under this prohibition, a student must not make any unauthorized use of materials obtained from commercial term paper companies or from files of papers prepared by other persons.

e. A student must not collaborate with other persons on a particular project and submit a copy of a written report which is represented explicitly or implicitly as the student's individual work.

f. A student must not use any unauthorized assistance in a laboratory, at a computer terminal, or on field work.

g. A student must not submit substantial portions of the same academic work for credit or honors more than once without permission of the instructor to whom the work is being submitted.

h. A student must not alter a grade or score in any way.

2. Fabrication: A student must not falsify or invent any information or data in an academic exercise including, but not limited to, records or reports, laboratory results, and citations to the sources of information.

3. Plagiarism: A student must not adopt or reproduce ideas, words, or statements of another person without appropriate acknowledgment. A student must give credit to the originality of others and acknowledge indebtedness whenever he or she does any of the following:

a. Quotes another person's actual words, either oral or written;
b. Paraphrases another person’s words, either oral or written;

c. Uses another person’s idea, opinion, or theory;

d. Borrows facts, statistics, or other illustrative material, unless the information is common knowledge.

4. Interference

a. A student must not steal, change, destroy, or impede another student’s work. Impeding another student’s work includes, but is not limited to, the theft, defacement, or mutilation of resources so as to deprive others of the information they contain.

b. A student must not give or offer a bribe, promise favors, or make threats with the intention of affecting a grade or the evaluation of academic performance.

Faculty Action

If a faculty member has information that one of his/her students committed an act of academic misconduct, the faculty member is required to hold an informal conference with the student. The conference should be prompt and private. If the faculty member concludes that the student is responsible for the misconduct, then the faculty member is authorized to impose an appropriate academic sanction (i.e., lower or failing grade on the assignment, assessing a lower or failing grade for the course).

After reporting the information to the Dean of Students, he/she will review the information to determine if additional sanctions should be applied.
Sanctions are outlined in the Code of Student Rights, Responsibilities, and Conduct. This document appears on the web at the following address: http://www.iupui.edu/Who/Dean/Code/

Policy on Student Academic Misconduct

Faculty are required to report all incidents of academic misconduct to the Dean of Students. For information about policies and procedures, including due process requirements, see the Code of Student Rights, Responsibilities, and Conduct, especially part III: Student Misconduct and Part IV: Student Disciplinary Procedures. The code is accessible online at http://www.iupui.edu/Who/Dean/Code

If you need any special accommodations due to a disability, please contact Adaptive Educational Services at (317)-274-3241. The office is located in CA 001E.
# The Institute for Forensic Imaging

**Scientific Digital Imaging, Part II**  
**Course FIS261**

<table>
<thead>
<tr>
<th>Friday Day 1</th>
<th>Friday Day 2</th>
<th>Friday Day 3</th>
<th>Friday Day 4</th>
<th>Friday Day 5</th>
<th>Friday Day 6</th>
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<tbody>
<tr>
<td>8:00 Extrapolation to Tools</td>
<td>8:00 Crime to Scene</td>
<td>8:00 Color Management to ICC Profiles</td>
<td>8:00 More to Photoshop Dynamic Range Rectify Tools Calculator</td>
<td>8:00 Calculating to Images Operating Procedures</td>
<td>8:00 Standard Operating Procedures</td>
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<tr>
<td>9:00 Basic to Adjustment Controls</td>
<td>9:30 Photography to Contrast/Filtering to Alternative/Lighting</td>
<td>10:00</td>
<td>10:00 Film vs Digital</td>
<td>10:00 Final Exercise</td>
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<td>10:00 Light Measurements</td>
<td>11:00 Review to Downloading to Calculations</td>
<td>11:00 Curves to Advanced Enhancement to Legal</td>
<td>12:00 Exercise to Considerations</td>
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<td>12:00/1:00 Lunch</td>
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<tr>
<td>1:00 ACE-V to Photogrammetry</td>
<td>1:00 Review to Photoshop Techniques</td>
<td>1:00 Channels to Advanced FFT</td>
<td>1:00 Working with Raw Images to PowerPoint Presentations</td>
<td>1:00 Final Exercise</td>
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<td>2:00</td>
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<td>2:00 Image Sharpness to Resolution</td>
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<td>Alternative Light to Exercise</td>
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<tr>
<td>3:30 Calculating to Resolution</td>
<td>2:00 Camera Exercise to 5:00</td>
<td>Advanced Photoshop Exercise to RAW Images Exercise</td>
<td>3:30 Prepare an Outline to Final Exam</td>
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<tr>
<td>3:30 Resolution to Exercise</td>
<td>5:00</td>
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**Course Breakdown**

Lecture=30.5 hrs  
Lab= 17.5 hrs  
Total In-Class= 48 hrs