

New Course Request

Indiana University

Indianapolis Campus

Check Appropriate Boxes: Undergraduate credit Graduate credit Professional credit

1. School/Division Informatics 2. Academic Subject Code NEWM-N
3. Course Number 243 (must be cleared with University Enrollment Services) 4. Instructor Albert William
5. Course Title Introduction to 3D

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

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

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

8. Is this course to be graded S-F (only)? Yes _____ No

9. Is variable title approval being requested? Yes No

10. Course description (not to exceed 50 words) for Bulletin publication: An introduction to the concepts and production process of 3D graphics and animation. Students learn basic techniques and theories related to modeling, texturing, lighting, animation, and rendering. Students produce animated graphics and text within the context of various projects.

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

14. Frequency of scheduling: F/S Will this course be required for majors? _____

15. Justification for new course: Redesign of New Media Curriculum

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: M Pauline Belu Date 6/30/2009
Department Chairman/Division Director

Approved by: [Signature] Date 1 July 2009
Dean

Date _____
Dean of Graduate School (when required)

Date _____
Chancellor/Vice-President

Date _____
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.

N243
Introduction to 3D

3 Credit Hours

Instructor: Staff
Office Address:
Office Phone:
Office Hours:
Email Address:

COURSE DESCRIPTION

An introduction to the concepts and production process of 3D graphics and animation. Students learn basic techniques and theories related to modeling, texturing, lighting, animation, and rendering. Students produce animated graphics and text within the context of various projects.

PREREQUISITE

none

REQUIRED TEXTBOOK

There is a required textbook.

Maya 8 at a Glance + CD (~\$35)

- **Paperback:** 240 pages
- **Publisher:** Sybex; Pap/Cdr edition
- **ISBN-10:** 0470056576
- **ISBN-13:** 978-0470056578

In addition, the following book is highly recommended:

Introducing Maya 8: 3D for Beginners + CD (~\$30)

- **Paperback:** 480 pages
- **Publisher:** Sybex; Pap/Cdr edition
- **ISBN-10:** 0470051353
- **ISBN-13:** 978-0470051351

COURSE OUTCOMES

Students will develop insight into the uses and meaning of animation production. Students will learn to apply that insight to “real-world” challenges and opportunities. Students will participate in the creation of projects that presents a hypothetical but plausible solution to a real-world need. These projects will be presented in formats and will demonstrate a familiarity with key components of any new media solution: content, technology, interface design, and usability.

OTHER MATERIALS RELATED TO THE COURSE

Storage media: A portable HD is strongly recommended.

A flash drive will be very useful.

Writable media such as CDs or DVDs will also be required to turn in projects and are good for backup.

Students will be required to bring writing materials, whether electronic or traditional, to class.

SOFTWARE USED

Autodesk Maya

Adobe Photoshop and Premiere

Audio Products: Sony SoundForge, or Adobe Audition
QuickTime

COURSE STRUCTURE OVERVIEW

The course structure is composed of these parts:

- Lectures / Lab
 - This activity will be the majority of class time. It will include critical review of contemporary media as appropriate to class. Use of software packages to implement concepts into practice.
- Quizzes
 - Quizzes will be administered during class time.
- Projects:
 - Tutorials and exercises will be assigned weekly. The instructor will review the online students' work shortly after and provide feedback.
 - Students **MUST** submit their work to OnCourse in the Drop Box by the start of class time.
 - A final project will be assigned.

CORE COMPETENCIES

1. Students will have the ability to perform basic modeling, animation, texturing, and lighting within an animation.
2. Students will deliver production and portfolio quality simulations that deliver advanced aesthetics, fluidity in animation, and 3D production workflow. High quality simulations will be expected.
3. Students will have the ability to deliver gaming and environmental projects, film and short story projects and scientific simulation productions.
4. Students will learn 3D concepts that work across all 3D software platforms.
5. Students must be able to conduct self-directed exploration, express and document ideas and themes in both written and spoken form.

DATE FOR EACH CLASS MEETING

Weekly schedule

Week 1 Intro, syllabus, concepts, examples, Maya interface, file directory

- Review basic history of computer generated animation
- Discuss how CG fits into Media Arts and Science- gaming, architecture, visualization of products and science

Week 2 Concepts, examples, Maya interface, file directory, custom shelf

- Historic applications of software based animation
- Explore and discuss software interface and file systems

Week3 NURBS modeling concepts and examples –assignment #1

- Review industry examples and uses of NURBS modeling
- Understand the concept of Non-Uniform Rational B-Splines
- Understand how to create NURBS, limitations and advantages

- Week 4 polygon modeling concepts and examples - assignment #2
- Review examples and uses of polygon modeling
 - Understand the concept of polygons
 - Understand how to create polygon models, limitations and advantages
- Week 5 Review of NURBS and Polygon modeling
- Compare and contrast modeling techniques
 - Understand computing expenses related to each to help determine modeling strategies
 - Review industry examples to understand history and applications
- Week 6 Lighting, texturing, and rendering concepts- assignment # 3
- Discuss lighting concepts- key lights, fill lights, global illumination
 - Discuss procedural versus image based textures
 - Explore the mechanisms behind computer generated rendering for various outputs
- Week 7 NURBS Textures and lighting– assignment #4
- Understand the basis of NURBS texturing
 - Explore procedural texturing
- Week 8 Polygon Textures and lighting – assignment #5
- Understand UV un-wrapping
 - Use Photoshop to develop image maps
- Week 9 Animation concepts and practice- Solar system tutorial
Assignment #6- Create .MOV of solar system
- Understand the basics of animation
 - Examine the historic basis of keyframe animation
 - Examine industry examples of uses of animation in various contexts- film, web and special FX
- Week 10 Solar system animation presentations, review animation concepts
- Week 11 Animation- Bouncing ball tutorial
Assignment #7- create .MOV of bouncing ball
- Understand the nuances of animation
 - Examine the historical aspects of deformation
- Week 12 Bouncing ball presentations, Final project assignment
- Determine final project based on the following:
 - Entertainment, architectural, product or scientific visualization
 - For pure CG production, web, or video integration
- Week 13 In class work time
- Week 14 In class work time Assignment #8- project checkpoint
- Week 15 in class work time
- Week 16 Assignment #9 Presentations of Final Project

Assignments- All assignments must be turned in on CD (or data DVD) with name and assignment number, or place in the Oncourse drop box- this will vary by assignment, please check the assignment description in Oncourse.. All assignments are due at the beginning of class. Late assignments will be reduced by 10% point value. Final project will not be accepted past due date.

Assignment 1- turn in .mb files of models (50 pts)

Assignment 2- turn in .mb files of models (50 pts)

Assignment 3- turn in .MOV of lighting tests (50 pts)
10 second 640 x 480 30 fps .MOV (Sorenson 3 codec) turntable view of textured models

Assignment 4- turn in .MOV of textured models (100 pts)
10 second 640 x 480 30 fps .MOV (Sorenson 3 codec) turntable view of textured models

Assignment 5- turn in .MOV of textured models (100 pts)
10 second 640 x 480 30 fps .MOV (Sorenson 3 codec) turntable view of textured models

Assignment 6- Create .MOV of solar system (100 pts)
15 second 640 x 480 30 fps .MOV (Sorenson 3 codec) of solar system simulation

Assignment 7- Create .MOV of bouncing ball (100 pts)
10 second 640 x 480 30 fps .MOV (Sorenson 3 codec) of bouncing ball simulation

Assignment 8- Project checkpoint (50 pts)
Turn in project directory with all scene files, textures, etc - Review individually in class

Assignment 9- Final project (250 pts)
Minimum 30 second animation with sound and graphics
640 x 480 30 fps .MOV (Sorenson 3 codec)
320 x 240 15 fps .MOV (Sorenson 3 codec)
CD (or data DVD) of all class projects

Attendance- (150 pts)

Date	Assignment	Percentage
Assignment #1	NURBS modeling concepts and examples (critical thinking, application of knowledge)	5%
Assignment #2	Polygon modeling concepts and examples (critical thinking, application of knowledge)	5%
Assignment #3	MOV of lighting tests (critical thinking, application of knowledge)	5%
Assignment#4	MOV of NURBS textured models (critical thinking, application of knowledge)	10%
Assignment #5	MOV of Polygon textured models(critical thinking, application of knowledge)	10%
Assignment #6	MOV of solar system (critical thinking, application of knowledge, oral presentation)	10%
Assignment #7	MOV of bouncing ball (critical thinking, application	10%

	of knowledge, oral presentation)	
Assignment #8	Project checkpoint (critical thinking, application of knowledge, oral presentation, written presentation)	5%
Assignment #9	Final project (critical thinking, application of knowledge, oral presentation, written presentation)	25%
	Attendance	15%

Grading Information:

- These factors that will be evaluated in determining grades:
 - Technical competencies
 - Aesthetic appeal
 - Professional production
 - Participation in class discussion and class attendance
 - Lab assignments/ homework
 - Late assignments will be reduced by one letter grade
 - Work may be turned in any time prior to the due date. Work will be considered late if not turned in by the end of the class on the date expected. A 10% reduction in score will be assessed for any assignment deemed late. Late work will be accepted for one week past the due date- assignments will be given a score of 0 (zero) points after this time. Final projects will not be accepted past the expected due date- a score of 0 (zero) points will be assessed on any final project not turned in on time.

Grading Standards

A – Outstanding, high quality work.

A fully completed project that demonstrates mastery of skills.

Projects that display creative and sometimes innovative work.

Combinations of color schemes, space, lighting, and layout were used effectively and chosen carefully.

B – Good to very good work.

The student completed the components of the project, but neglected to experiment with additional or more challenging technical approaches.

The work demonstrates good abilities in the respective new media applications, but may lack depth and level of skill.

The project could be lacking in areas of design, planning, or technical approach.

C – Average work.

The work demonstrates average skills in depth, design, and application.

No more than what was required of the course was completed.

The work is possibly incomplete in parts.

File formats had errors or were not compatible as expected

D – Below average work.

The work is largely incomplete and displays a lack of effort.

Very little time was put into the software and thusly resulted in poor quality work. The files handed in had errors or were not compatible as expected.

F – Failure to complete the objectives of the course.

Grade Scale

A+ 99 – 100

A 93 – 98.99

A- 90 – 92.99

B+	87 – 89.99
B	83 – 86.99
B-	80 – 82.99
C+	77 – 79.99
C	73 – 76.99
C-	70 – 72.99
D+	67 – 69.99
D	63 – 66.99
D-	60 – 62.99
F	Below 60%

STATEMENT OF VALUES

- The Mission of IUPUI is to provide for its constituents excellence in Teaching and Learning, Research, Scholarship, and Creative Activity, and Civic Engagement. With each of these core activities characterized by: 1) collaboration within and across disciplines and with the community, a commitment to ensuring diversity, and 3) pursuit of best practices. IUPUI's mission is derived from and aligned with the principal components – Communities of Learning, Responsibilities of Excellence, Accountability and Best Practices – of Indiana University's Strategic Directions Charter. IUPUI values the commitment of students to learning; of faculty to the highest standards of teaching, scholarship, and service; and of staff to the highest standards of service. IUPUI recognizes students as partners in learning.
- IUPUI values the opportunities afforded by its location in Indiana's capital city and is committed to serving the needs of its community. Thus, IUPUI students, faculty, and staff are involved in the community; both to provide educational programs and patient care and to apply learning to community needs through service. As a leader in fostering collaborative relationships, IUPUI values collegiality, cooperation, creativity, innovation, and entrepreneurship, as well as honesty, integrity, and support for open inquiry and dissemination of findings. IUPUI is committed to the personal and professional development of its students, faculty, and staff and to continuous improvement of its programs and services.

POLICIES *for* ATTENDANCE & ASSIGNMENT/PROJECT DEADLINES

1. **Missing class WILL impact your grade.** (For in-class students only.) Students are allowed two (excused or unexcused) absences before their grade will be effected. In other words, whether you are sick or have personal problems or issues for missing class, it will amount to the same. Missing class means you do not show for the whole or majority of the session. The grade reduction policy works in this way.
 - On the third missed class time your final grade will drop 5 points (regardless of the reason).
 - On the fourth missed class your final grade will drop 10 points (regardless of the reason), and 5 additional points thereafter for each additional class missed.
2. **Responsible for due dates and related materials:** All weekly due assignments are each student's responsibility. If class is missed, the student is still responsible for the assignment, as well as to find out what was covered in class, e.g., any new assignments or variations to an existing assignment. ALL assignment deadlines are outlined in the syllabus or syllabus supplemental documents provided on OnCourse. Ultimately, each student is responsible for the deadline. Also, weekly assignment deadlines should be adhered to, to insure fairness to all students. For the purpose of maintaining an equal and fair evaluation of each student's work, no student will receive special treatment. As a result, the following rules will apply to this course:
 - All assignments must be submitted through OnCourse at the designated time as stated on the assignment sheet, as communicated via email, or on the syllabus.
 - All assignments (projects) handed in late will be reduced 10 points for every day late (24 hrs. from the due date and time). For example, if the assignment is due at 6PM on the due date and it is post-marked 6:01PM, it will be reduced automatically by 10 points. If the class meets in the class room, students must be ready to hand the assignment in at the start of class time.

- Incompletes will NOT be issued except under very extreme personal conditions that have been reviewed by the instructor and in some cases in consultation with the Dean's Office.

UNIVERSITY POLICIES (* Does not apply to online students.)

1. **University Attendance Policy:*** Attendance is required. The University regulations state: "Students are expected to be present for every meeting of the classes in which they are enrolled." IUPUI faculty are required to submit to the office of the Register a record of student attendance through the semester, on which they will take action if the record conveys a trend of absenteeism. As a result, ATTENDANCE WILL BE TAKEN IN ALL CLASSES. An Attendance sheet will be passed out in class for each student to sign their name. If you do not sign your name while in class you will be marked absent. The instructor is not expected to remember who attended when, so signing the sheet while in class is important. Signing the attendance sheet for another student is absolutely prohibited. Any student found doing so will be in violation of university policies on ethics and/or conduct.
2. **Bringing your children to class:** * University Policy states that: "Children are not permitted to attend class with parents, guardians, or childcare providers. This conduct has the effect of unreasonably interfering with an individual's work or academic performance creating an offensive learning environment." "A student must not violate course rules as contained in a course syllabus, which are rationally related to the content of the course or to the enhancement of the learning process in the course." [*Code of Student Rights, Responsibilities, and Conduct, page 29*]
3. **Academic Dishonesty / Integrity / Plagiarism:** Using another student's work on a project or assignment, cheating on a test, or any other form of dishonesty or plagiarism will result in a grade of zero on that assignment and possibly an "F" in the course, and will be referred to the Dean of Students. All students should aspire to high standards of academic honesty. This class encourages cooperation and the exchange of ideas. For further reference, students may see: <http://life.iupui.edu/dos/code.htm> .
4. **Values and ethics:** Profanity or derogatory comments about or towards the instructor or any member of the class will NOT be tolerated. Violating this rule will result in a warning and if the offense continues, administrative action will be taken.
5. **Code of Student Rights, Responsibilities and Conduct:** All students are responsible for reading, understanding, and applying the Code of Student Rights, Responsibilities and Conduct of IUPUI. (students can access www.iupui.edu/code for further information regarding the above points)
6. **Disabilities Policy:** In compliance with the Americans with Disabilities Act (ADA), all qualified students enrolled in this course are entitled to "reasonable accommodations." Please notify the instructor during the first week of class of any accommodations needed for the course. Students with learning disabilities must provide written verification for this policy to be recognized.