New Course Request

1. School/Division: Informatics
2. Academic Subject Code: NEWM-N
3. Course Number: 343 (must be cleared with University Enrollment Services)
4. Instructor: Clint Koch
5. Course Title: 3D Modeling
   Recommended Abbreviation (Optional): P: N243
   (Limited to 32 Characters including spaces)
   6. First time this course is to be offered (Semester/Year): Fall 2010
   7. Credit Hours: Fixed at ______ 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:
       P: N243. Intermediate modeling course, aimed at achieving high-detail, professional quality 3D models for games, film, architecture, science, and other application areas. In-depth use of professional software packages. Possible topics include modeling high-resolution organic characters, modeling foliage and ornate structures, displacement mapping techniques.

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: ______ 25 ______ of which ______ 0 ______ percent are expected to be graduate students.
14. Frequency of scheduling: F/S
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 Baker
Department Chairman/Division Director
Date 6/30/2019

Approved by:

[Signature]
Dean
Date 1 July 2009

[Signature]
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.

UPS 724 University Enrollment Services Final—White; Chancellor/Vice-President—Blue; School/Division—Yellow; Department/Division—Pink; University Enrollment Services Advance—White
N343
Intermediate 3D Modeling

Course Info: 3 Credit Hours
Instructor: Staff

COURSE DESCRIPTION

Intermediate modeling course, aimed at achieving high-detail, professional quality 3D models for games, film, architecture, science, and other application areas. In-depth use of professional software packages. Possible topics include modeling high-resolution organic characters, modeling foliage and ornate structures, displacement mapping techniques.

PREREQUISITE: N 243

REQUIRED TEXTBOOK

There is a required textbook. These texts are subject to change over time.
Introducing Zbrush
- Publisher: Sybex
- ISBN-10: 0470262796
- Author: Eric Keller

In addition, we will be employing various pieces of literature to advance the student, including:
- Recorded lectures through camtasia videos
- DVD video tutorial for checkout from library
- 3D World/Cinefex/Siggraph Electronic Theatre DVD's for checkout from the library
- Understand the concept of polygons

COURSE OUTCOMES

Students will develop insight into the uses and meaning of organic character 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 real-world needs. 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. The course will also adhere to the university set guidelines that fulfill the PUL's of education.

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. Note taking is expected and necessary.

SOFTWARE USED
Zbrush/Mudbox
Autodesk Maya and Mental Ray
Adobe Photoshop and After Effects
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.
* Projects:
  * Exercises will be assigned weekly. The instructor will review the online students’ work shortly after.
  * A final project will be assigned.

CORE COMPETENCIES

1. Students will have the ability to perform intermediate modeling, texturing, and lighting to a high quality within a digital character.
2. Students will deliver production and portfolio quality simulations that deliver Intermediate aesthetics 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. The conceptual and theoretical nature of the course is very important to the success of the student.
5. Students will have the ability to create low resolution and high resolution characters and production pieces.

DATE FOR EACH CLASS MEETING

Week 1  Intro, syllabus, concepts, examples
  * View prior class projects and professional pieces
  * Siggraph
  * Projects Overview

Week 2  Review Maya Interface and Polygonal Modeling techniques
  * Discuss topology and edge flow
  * Review modeling techniques

Week 3  Begin low polygonal construction of character demo in Maya
  * Create each respective piece of the character in Maya
  * Discuss edge flow and topology of this respective character
  * Class can either follow along or watch

Week 4  Continue low polygonal modeling construction to Intermediate level of detail
  * Discuss addition of appendages (ears, nose, arms)
  * Discuss edge flow and topology and its importance in animation
  * Assignment #1: Low Resolution of Character Construction

Week 5  Low Polygonal fine tuning, mirroring, and exportation to detailing package
  * Check in with class on Assignment #1

Week 6  Zbrush/Mudbox Interface
  * Overview the interface of the respective technology
  * Discuss hotkeys, movement, and basics of the package

Week 7  Importation of low resolution model for detailing
  * Working on larger forms for proportions in the digital software
  * Work with class projects
Week 8  Intermediate detailing in digital detailing package
- How to create alpha map patterns; difference between constructed maps and photos

Week 9  Intermediate detailing concepts
- Instruct upon the creation of wrinkles, pores, scars, and patterns
- Midterm collection assignment #2

Week 10  Finish off demo
- Help students with Final project
- Discuss posing of characters

Week 11  Displacement and Normal Mapping
- Create the appropriate maps for high detailing

Week 12  Applying maps back on in Maya
- Displacement shader construction

Week 13  In class work time for Final Project

Week 14  In class work time for Final Project

Week 15  In class work time for Final Project

Week 16  Final Project due

Assignments- All assignments must be turned in on CD (or data DVD) with name and assignment number. 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- 2 week homework assignment of low polygon character in Maya (10 pts)

Assignment 2- 2 week homework assignment of low resolution of larger forms in Zbrush (10 pts)

Assignment 3- 3 week homework assignment of high resolution model/midterm (20 pts)

Assignment 4- Final project (50 pts)
  Maximum 10 second revolve animation of character with appropriate maps; I am looking for quality over quantity of animation
  800::600 or higher resolution 30 fps .MOV (Sorenson 3 codec)
  CD (or data DVD) of all class projects

Attendance- (10 pts)

<table>
<thead>
<tr>
<th>Date</th>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment #1</td>
<td>Low Polygon Setup in Maya (critical thinking, application of knowledge)</td>
<td>10%</td>
</tr>
<tr>
<td>Assignment #2</td>
<td>Larger forms in Zbrush (critical thinking, application of knowledge)</td>
<td>10%</td>
</tr>
<tr>
<td>Assignment #3</td>
<td>Project midterm checkpoint and high detailing in zbrush (critical thinking, application of knowledge, oral presentation)</td>
<td>20%</td>
</tr>
<tr>
<td>Assignment #4</td>
<td>Final Project (critical thinking, application of knowledge, oral presentation)</td>
<td>50%</td>
</tr>
<tr>
<td>Attendance</td>
<td></td>
<td>10%</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Letter</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>99 - 100</td>
</tr>
<tr>
<td>A</td>
<td>93 - 98.99</td>
</tr>
<tr>
<td>A-</td>
<td>90 - 92.99</td>
</tr>
<tr>
<td>B+</td>
<td>87 - 89.99</td>
</tr>
<tr>
<td>B</td>
<td>83 - 86.99</td>
</tr>
<tr>
<td>B-</td>
<td>80 - 82.99</td>
</tr>
<tr>
<td>C+</td>
<td>77 - 79.99</td>
</tr>
<tr>
<td>C</td>
<td>73 - 76.99</td>
</tr>
<tr>
<td>C-</td>
<td>70 - 72.99</td>
</tr>
<tr>
<td>D+</td>
<td>67 - 69.99</td>
</tr>
<tr>
<td>D</td>
<td>63 - 66.99</td>
</tr>
<tr>
<td>D-</td>
<td>60 - 62.99</td>
</tr>
<tr>
<td>F</td>
<td>Below 60%</td>
</tr>
</tbody>
</table>
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.