N345 Organic Modeling and Texturing
Section | XXXXX, IT XXX, 3 CR
Lecturer/Media Arts and Science/http://www.oncourse.iu.edu

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The Mission of IUPUI is to provide for its constituents excellence in
- Teaching and Learning
- Research, Scholarship, and Creative Activity
- Civic Engagement
  - With each of these core activities characterized by
- Collaboration within and across disciplines and with the community
- A commitment to ensuring diversity, and
- 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.

Statement of Values

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.

Required Text:

There are no required texts for this course.
Recommended Text:

Anatomy for the Artist

• Publisher: DK Publishing; First Edition, 3rd Printing edition (October 1, 2001)
• ISBN-10: 078948045X

Equipment needed:

• Notebook
• Portable Hard Drive (250mb or higher) [flash drives not recommended]
• Drop Box Account [http://www.dropbox.com/]

Course Description:

Intermediate organic modeling course, aimed at achieving high-detail, professional quality 3D models for games, film, architecture, science, and other application areas. This course will explore using the foundations 3D modeling, Sculpture, and Texture painting to output believable creations.

Course Outcomes:

Students will develop a set of organic objects, and display them appropriately for their intended industry. Of possible objects, students will choose from stylized humans, creatures, and plants, the creations will be a believable, entertaining and/or instructional. Students will concept their proposals using traditional conceptual art techniques and reference gathered from real world.

Core Competencies:

• Students will have the ability to develop, discuss, and implement from preproduction, to production, to post production of organic creatures and characters for film or video games.
• Students will have the skills to model, texture and render organic models in Maya
• Students will create at minimum of a posed moment of the organic object for display in turntable for a production reel
• Students will learn modeling, texturing, and rendering pipelines inside of Maya
• Students will have the ability to deliver gaming and environmental projects, film and short story projects and scientific simulation productions.

Software used:

Autodesk Maya
Zbrush
Adobe Production Suite
Expectations/Guidelines/Policies:

- **Attendance** For success in this class I expect students to attend each class session. I will only allow missed classes if you give me notice a full week in advance. This class has a stringent attendance policy of 1 dropped letter grade for each 2 classes missed. I will take attendance at the beginning of each class.
- **Exams/quizzes** - There are no exams or quizzes
- **Homework Assignments** I WILL require homework exercises following tutorials or in class demo each week. I expect these to be completed by the next class.
- **Class Assignments** Class tutorials and demos must be completed with the instructor. Failure to do so can result in a detrimental effect on effort and class participation scores.
- Class assignments/projects are expected to be finished and handed in on time. If you can’t get in an assignment before class, email it to me.
- Final projects will not be accepted late.

Date for each class meeting:
- Specific pre-class readings
- Specific subject matter/topics covered
- Goals and objectives of each class period

Assessment - Each Class will access
- Oral presentation - Being involved in class lectures/demos
- Writing skills
- Critical thinking
- Application of knowledge
- Intellectual depth, breadth, and adaptiveness
- Understanding of society and culture
- Values and ethics

Tentative Weekly Outline

Week 1:

Introduction
- View prior class projects
- Siggraph 2013/CGTalk/3D websites

Final Project Details
- Create your own character and creature
- Use Joints, Ik/FK kinematics, influence objects for pose

Lecture: Review Maya interface, controls and hotkeys for polygon modeling
Lab: Project Setup, discussion and inquiry.

Assignment:
(1) Create your own characters and creature concept art to use for the semester.
(2) Research Assignment: Locate 3 top 3D modelers online, document their work, process, and how they got into the trade.
Week 2:
Lecture: Modeling via Reference, topology planning
- Overview of fundamentals in modeling Polygons
- Edge Looping and Topology Instruction
Lab: Discuss kinesiology, and how edge-loops assist in animation for different industries
Assignment: Make 500k polygon mesh

Week 3:
Lecture: - Edge Looping and Topology Instruction / Anatomy & proportion Checks
- Modeling Edge Loops for facial structures, hand and feet
Lab: - Review Anatomy of student projects
Assignment: make 1k mesh

Week 4:
Lecture: Additional Modeling practice
Lab: 3, 30 minute modeling sessions
Assignment: 4k model

Week 5:
Lecture: Using Animation Deformers, for modeling checking anatomy, using reference
Lab: Open lab to begin modeling midterm
Assignment:

Week 6:
Lecture: - Unwrapping techniques in UV Layout and Maya for
- Unwrapping Techniques versus Maya
- Maya and Zbrush Workflow Theories
Lab: - UVLayout Demo
Assignment:

Week 7:
Lecture: Procedural Shaders vs File based Texturing for organic objects
Lab Introduce the HyperShader, creating relationships and
Assignment:

Week 8:
Texturing in Photoshop for organic objects, creation of diffuse, specular, and Bump maps,
Lab: Use photos, paint brushes, and layer adjustments

Week 9:
Lecture: Texturing in Zbrush using Polypaint and/or Spotlight for organic objects
Lab: Demo on Creature/Character
Assignment: Texture character and creature

**Assignment: Milestone #2 Due Week #10**

Week 10:
- Lecture: Rigging Techniques
- Applying Bones, CTRL shapes to pose your character for Maya
- Lab: Demo Joints, IK, FK, and SPLINE IK Uses
- Assignment: Create joint system, IK, and Spine IK for models

Week 11:
- Lecture: Rigging Techniques
- Blend Shapes and for posing the face in Maya
- Lab: Demo Blend Shapes versus Influence Objects and Paint Weights
- Assignment: Create blend shapes for models

Week 12:
- Lecture: Rigging Techniques
- Skinning Geometry, Wrapping Geometry for additional Assets
- Lab: Show Weight Painting

**Assignment: Milestone #3 due Week #13**

Week 13:
- Lecture: Rendering Techniques using SSS and Ambient Occlusion and 3 Point lighting
- 3 point Lighting
- Lab: Assignment:

Week 14:
- Lecture: Rendering Techniques
- Creating Turntable for Character Reels, rendering sequences
- Lab: Work on setting up Render layers and Passes in After Effects

**Assignment:**

Week 15:
- Lab: WorkDay

Week 16:
- Present Final Project and Turntables.

**Grading Information:**
- **Weekly Assignments**

  All assignments are to be delivered in a folder with your name, class #, and week # titled, if the assignment is Maya based; with Maya project folders, and will be evaluated through Oncourse within the week.

  Each weekly assignment is worth 50 points each.

  Weekly assignments will consist of certain body parts and beginning to develop an appreciation of how the body works and moves. Students will learn to see, be patient, and develop a strong sense of foundations in proportion and anatomy.

- **Milestone # 1** is a preliminary check on character modeling and anatomical foundation and understanding Worth 100 pts

- **Milestone # 2** is a secondary check on character believability and texturing understanding on Organic character modeling. Worth 100 pts

- **Milestone # 3** is a tertiary check on character articulation and rigging capabilities based anatomical foundation, Worth 100 pts

- **Final Project Milestone** is a final assessment of your ability to understand and implement the practices learned each week and is worth 300 points.
  
  o 100 points towards model and quality
  o 100 unwrap texture quality on Diffuse, Specular, and bump channels
  o 100 points the Pose, , render and display of final product

- **Professionalism (100 pts)**

  Professionalism is the highest quality a student of industry can gain and respect. We are all adults, the following are areas in which we will earn or lower your grade over the 11 weeks of class.

  - Attitude (be excited)
  - Tardiness
  - Contributing and requesting of Critiques in class
  - Deliverables (turning in what is asked for, the way its asked for)
  - Effort
  - Looking and smelling the part
  - Presentation Quality
  - Teamwork (Are you contributing effectively? Socially?)
  - Timeliness (time spent on projects versus peers)
  - Time tracking (What are you worth? How long are you taking?)
<table>
<thead>
<tr>
<th>Assignment</th>
<th>Due Date</th>
<th>Assignment</th>
<th>Points</th>
</tr>
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<tbody>
<tr>
<td>Assignment #1</td>
<td></td>
<td>Conceptual Art, Research 3 Character Artists</td>
<td>50</td>
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<tr>
<td>Assignment #2</td>
<td></td>
<td>500 base mesh #1 (plant)</td>
<td>50</td>
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<td>Assignment #3</td>
<td></td>
<td>1k polygon mesh (animal)</td>
<td>50</td>
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<td>Assignment #4</td>
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<td>4k polygon mesh (character)</td>
<td>100</td>
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<td>Assignment #5</td>
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<td>Model accessories for plant animal and character, prep for unwrap</td>
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<td>Assignment #6</td>
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<td>Polish Models and accessories, prep for unwrap</td>
<td>50</td>
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<tr>
<td>Milestone #1</td>
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<td>All models unwrapped</td>
<td>50</td>
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<td>Assignment #8</td>
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<td>Begin texturing character and creature, and all other accessories</td>
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<td>Export textures, prep for Maya</td>
<td>100</td>
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<tr>
<td>Milestone #2</td>
<td></td>
<td>Export textures, prep for Maya</td>
<td>50</td>
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<tr>
<td>Assignment #10</td>
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<td>Create joint system, IK, and Spine IK for models, Create blend shapes</td>
<td>50</td>
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<tr>
<td>Assignment #10</td>
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<td>Skin Character, incorporate other geometry into rig,</td>
<td>50</td>
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<td>Milestone #3</td>
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<td>Render tests ready to evaluate</td>
<td>100</td>
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<td>FINAL</td>
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<td>Turntable, with pose, full render for each model</td>
<td>300</td>
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<td>Professionalism</td>
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<td>Overall attendance, effort, communication</td>
<td>100</td>
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**Grading scale**
Grading Standards

A – Outstanding, high quality work.
A fully completed project that demonstrates mastery of skills. Projects that display creative and sometimes innovative work. The students created many sketches and investigated several options before choosing one. Combinations of color schemes, space, and page 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. Space was filled adequately and a few combinations of design were tried. 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 or used the wrong file extension on handed in projects.

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 unable to be downloaded.

F – Failure to complete the objectives of the course.

I - Incomplete
Students are expected to complete their work in the allotted time of this session. However,
because of unforeseen hardships students may not be able to complete the project in the time established for completion of his/her work. To receive a grade of Incomplete you must have 75% of the course work completed at a passing level.

Other Policies

Academic Dishonesty
Using another student’s work on a project, assignment, or any other form of dishonesty will result in a grade of zero and possibly an “F” in the course and will be referred to the Dean of Students.

All students in New Media should aspire to high standards of academic honesty. This class encourages cooperation and the exchange of ideas. However, students are expected to do their own work.

Plagiarism: (adapted from the definition by the School of Liberal Arts)
Plagiarism is the use of the work of others without properly crediting the actual source of the ideas, words, sentences, paragraphs, entire articles, music or pictures. Using other students’ work (with or without their permission) is still plagiarism if you don’t indicate who initially did the work. Plagiarism, a form of cheating, is a serious offense and will be severely punished. When an instructor suspects plagiarism, he/she will inform the student of the charge; the student has the right to respond to the allegations. Students whose work appears to be plagiarized may be asked to produce earlier drafts of the work. Students should, for this reason and as a protection in cases of lost papers, diskettes, retain rough drafts, notes and other work products for 2 or 3 weeks after the end of each semester. The penalties for plagiarism include reprimands, being failed for a particular exam, paper, project or the entire course, disciplinary probation, or dismissal. Faculty, after consulting with their chair and or the dean must notify students in writing of their decision. Students have the right to appeal such decisions by submitting a petition.

Late Work:

Class assignments are expected to be finished and handed in on time. Late assignments will have a letter grade deduction after each class day not completed. If you cannot present on a specific day I need to know at least a week in advance so we can schedule for another time.

Final projects will not be accepted late.

All students are responsible for reading the code of student rights, Responsibilities, and Conduct of IUPUI

Liability warning:

Students are held accountable for lost items when they are logged into their computer account. Please log off each and every time you leave the lab.
Your student ID and password are private! Under no circumstance are you to give them out to anyone. If another person uses your ID or password you will be held personally responsible for any and all activity on your computer account. If plagiarism is involved you run the risk of being dismissed from the school. If a computer or software is damaged you are responsible for repair.

“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]

**Administrative Withdrawal:**
A basic requirement of this course is that you will participate in class and conscientiously complete writing, reading, lab, and project assignments. Keep in touch with me if you are unable to attend class or complete an assignment on time.

If you miss more than half of our class meetings within the first four weeks of the semester without contacting me, you will be administratively withdrawn from this section. Our class meets once/twice [*] per week; thus, if you miss two/four [*] or more classes in the first four weeks, you may be withdrawn.

Administrative withdrawal will take place after the full refund period, and if you are administratively withdrawn from the course you will not be eligible for a tuition refund. If you have any questions about the administrative withdrawal policy at any point during the semester, please contact me.