NEWM N238
2D ANIMATION

Department of Human-Centered Computing, Media Arts and Science Program
Indiana University School of Informatics and Computing, Indianapolis
Fall 2015

Section No.: 13989 Credit Hours: 3
Day/Time: 
Location: IT 255, Informatics & Communications Technology Complex
535 West Michigan Street, Indianapolis, IN 46202 [map]
First Class: 
Instructor: Steven R. Brown, BS in Media Arts & Animation, Lecturer
Office Hours: TBA
Office: TBA
Phone: 502-262-7153 (Cell)
Email: srbartist@gmail.com
Website: TBA

COURSE DESCRIPTION
An introduction to the foundational techniques of 2D animation applied in digital media. This course will cover the 12 principles of animation, life observation, and practice work to prepare students to be able to create a variety of animations including but not limited to entertainment, commercial, gaming, and educational purposes.

Required Text:
The Animator’s Survival Kit
Richard Williams
Publisher: Faber & Faber; 1st edition (January 7, 2002)

Supplementary Text:
The Illusion of Life: Disney Animation
Frank Thomas, Ollie Johnston,
Publisher: Disney Editions; 1st edition (October, 2005)

Acting for Animators
Ed Hooks
Publisher: Disney Editions; Revised (October, 2005)
Equipment needed:

- [http://www.box.iu.edu](http://www.box.iu.edu) for file sharing

Software used:

- Adobe Flash
- Adobe After Effects
- Adobe Photoshop
- Adobe Premiere
- Unity

Course Objectives:

Students will develop concepts from completed storyboards and edited reference video. Their concepts will be sketched on storyboards and their production flow will be documented in a conceptual paper that defines your respective approach. Throughout the course, students will be critiquing and evaluating the processes and execution of animation. While animating, students will be exposed to traditional methods of criticism and identify their personal workflow that best fits their needs.

**STUDENT LEARNING OUTCOMES**

| Upon completion of this course, students will                                      |
|                                                                                   |
| 1. Composite and package animation to be more marketable, raise production value, and |
| 2. Apply advanced techniques to animation such as animation smears, overlapping animation, and layered animation. |
| 3. Develop production and portfolio quality animation exercises.                  |
| 4. Create and deliver proficient, engaging, and clean animation.                  |
| 5. Create and implement Sprite Sheet based animation for 2D Gaming applications.  |
Principles of Graduate and Professional Learning (PGPL)

Learning outcomes are assessed in the following areas:

1. Knowledge and skills mastery (K&S)  Moderate emphasis
2. Critical thinking and good judgment (CT)  Major emphasis
3. Effective communication (EC)  Some emphasis
4. Ethical behavior (EB)

EXPECTATIONS, GUIDELINES, AND POLICIES

Attendance:
For success in this class students are expected to attend each class session. Missed classes are only allowed if notice is given 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.

Incomplete:
The instructor may assign an Incomplete (I) grade only if at least 75% of the required coursework has been completed at passing quality and holding you to previously established time limits would result in unjust hardship to you. All unfinished work must be completed by the date set by the instructor. Left unchanged, an Incomplete automatically becomes an F after one year. [http://registrar.iupui.edu/incomp.html](http://registrar.iupui.edu/incomp.html)

Deliverables:
You are responsible for completing each deliverable (e.g., assignment, quiz) by its deadline and submitting it by the specified method. Deadlines are outlined in the syllabus or in supplementary documents accessible through OnCourse. Should you miss a class, you are still responsible for completing the deliverable and for finding out what was covered in class, including any new or modified deliverable. In fairness to the instructor and students who completed their work on time, no grade will be given on a deliverable, if it is submitted late, the material will still be reviewed and/or critiqued.

Exams/quizzes:
There are no exams or quizzes

Lab assignments:
Class tutorials and demos must be completed along with the instructor. Failure to do so can result in a detrimental effect on overall quality of work and trend in lower scores.
Class assignments:
Class assignments/projects must be finished and handed in on time. If you can’t get in an assignment before class, email it to me, and upload and message it via OnCourse.
Students are expected to achieve exemplary results in all assignments, expected to lead in class critique, and to participate in assisting others and critiquing their work in the class.
Final projects will not be accepted late.

Grading Information:
- Projects, papers, Class Participation determine grades weekly
- Professionalism is graded over the entirety of the course and includes participation (attitude, in-class critiques and questions, on-time deliverable(s), presentation quality)
- Grades will be returned along with critique no later than 2 weeks after assignment turn in.

WEEKLY SCHEDULE

Week 1
Introduction to class: syllabus
View prior class projects
LECTURE – Introduction to Principles of Animation & Flash Layout
LAB – Demonstration of Basic Tools of Flash
ASSIGNMENT – 10 Animator Head
Create a 1280x1280 flash file that has 10 heads dedicated to 10 animators of your choice. Experiment with drawing tools to create refined caricatures.

Week 2
LECTURE – Squash & Stretch, Arcs, Timing, Slow-In & Slow out
LAB – Animating an bouncing sphere.
ASSIGNMENT - Bouncing Spheres
Create a 1280x720 flash file that contains 4 animated spheres on on their own layer, each ball represents different weight and hardness.

Week 3
LECTURE – Follow Through and Overlapping Action, Straight Head & Pose to Pose, Anticipation
LAB - Adding a Tail to ball
ASSIGNMENT – Following Tail
Create a 1280x720 flash file that contains a 5 second animation of a bouncing ball with a tail attached to it.

**Week 4**

LECTURE – Acting for Animation, Staging & Secondary Action  
LAB - Demonstrate basic Storyboards techniques and acting.  
ASSIGNMENT – Inanimate Objct Animation  
Storyboard an animation of an inanimate object coming to life and exploring its surroundings, minimum of 6 seconds.  
Act out and record reference of your story you boarded.  
Create an animatic based off your footage and storyboards.

**Week 5**

LECTURE – Review Principles of Animation & Character Design for Animation  
LAB - Break down characters into simple shapes  
ASSIGNMENT – Flower Sack Animation  
Create an animation based off your reference footage and storyboards. This is your midterm.

**Week 6**

LECTURE – Character Design for Animation (Solid Drawing, Appeal)  
LAB - Basic Photoshop & Character Design Demo  
ASSIGNMENT – Character Design  
Create a 11x17” Character model reference sheet of the character you will be animating for the rest of the class. With limited text, and illustration to explain any information about the character. The sheet will require;  
5 Pose Turn Table - 3/4 View, Side View, Front & Back, 1 ¾ View Breakdown  
5 Facial Expressions (with entire head drawn)  
Phonemes (Mouth only is allowed)  
4 Unique elements of the character defined.  
Model Sheet will be printed and brought in digitally and physically.

**Week 7**

LECTURE – Motion Graphics (Appeal Recap)  
LAB - After Effects Basics Demo  
ASSIGNMENT –
Create a 1920x1080 H.264 .mov or mp4 video that sells the class on the character, using the 12 Principles of animation to create kinetic type, transition to make an engaging video. This also a chance for you to refine any critiques that are said in class before we start to animate the character.

**Week 8**
LAB - Walk Cycle
ASSIGNMENT – Character Walk Cycle
   Create a 1280x720 flash file that contains a 16 frame rough walk cycle. This shouldn’t be final art, this should be exclusively sketches with focus on acting and proportions.

**Week 9**
LAB - Walk Cycle Part 2
ASSIGNMENT – Character Walk Cycle
   Review and complete walk cycle after refining problem areas. Complete art and color.

**Week 10**
LECTURE – Character Emotional Animation, Psychology of the face, Anatomy, Emotions and Physiology
LAB
ASSIGNMENT – Facial Animation
   Record your self shifting between emotions.
   Create 1280x720 Flash File of a rough animation of your character or yourself frame by frame changing their facial expressions based off reference.

**Week 11**
LECTURE – review current facial animations
LAB
ASSIGNMENT – Facial Performance – Draw out and act out main action of an emotional clip of audio, then Block, and refine, and polish the frames of animation
Incorporate All Animation Principles

**Week 12**
LECTURE – Lip Syncing & Phonemes
LAB
ASSIGNMENT Lip Syncing
   Record yourself mouthing a selected piece of audio of 6 seconds of length or more.
Create a 1280x720 Flash File of your character or yourself reflecting the source footage you recorded.

**Week 13**
LECTURE – Lip Syncing review  
ASSIGNMENT Lip Syncing  
Refine Lip syncing animation and finalize line art.

**Week 14**
LECTURE – Unity and Sprite Sheet Preportation  
LAB - Importing Walk Cycle into Unity  
ASSIGNMENT - Final - 2D Platformer  
Render out frames and compile a Walk Cycle into a sprite sheet and add sprites to pre-made Unity file and allow character to walk.

**Week 15**
LAB - Idle Animation & Jump Cycle  
ASSIGNMENT Final - 2D Platformer  
Animate and render out frames and compile Idle animation and jump cycle to a sprites to pre-made Unity file and allow character to walk.

**Week 16**
Present final playable 2D Platformer with the ability to stand idle, walk, and jump.

**Grading Information:**

**Weekly Assignments**
All assignments are to be delivered in a folder with your name, class, and week titled.
Each weekly assignment is worth 50 points each, unless specify by the instructor.
Weekly assignments will consist of an exercise to practice one of 12 principles of animation.

Every assignment will be given 2 weeks to due up to Assignment 8, beyond this point every project will have a week for the assignment, and a week for revisions.
### Assignments

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Due Date</th>
<th>Assignment</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1</td>
<td>Week 3</td>
<td>11 Animator Head - Project</td>
<td>50</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>Week 4</td>
<td>Bouncing Spheres - Projec</td>
<td>50</td>
</tr>
<tr>
<td>Assignment 3</td>
<td>Week 5</td>
<td>Following Tail Project</td>
<td>50</td>
</tr>
<tr>
<td>Assignment 4</td>
<td>Week 6</td>
<td>Inanimate Object Animation</td>
<td>50</td>
</tr>
<tr>
<td>Assignment 5</td>
<td>Week 7</td>
<td>Inanimate Object Animation Refined</td>
<td>50</td>
</tr>
<tr>
<td>Assignment 6</td>
<td>Week 8</td>
<td>Character Design Model Sheet</td>
<td>200</td>
</tr>
<tr>
<td>Assignment 7</td>
<td>Week 9</td>
<td>Motion Graphic Video</td>
<td>50</td>
</tr>
<tr>
<td>Assignment 8</td>
<td>Week 9</td>
<td>Walk Cycle</td>
<td>50</td>
</tr>
<tr>
<td>Assignment 9</td>
<td>Week 10</td>
<td>Walk Cycle Revised</td>
<td>50</td>
</tr>
<tr>
<td>Assignment 10</td>
<td>Week 11</td>
<td>Facial Performance</td>
<td>50</td>
</tr>
<tr>
<td>Assignment 11</td>
<td>Week 12</td>
<td>Facial Performance Revised</td>
<td>50</td>
</tr>
<tr>
<td>Assignment 12</td>
<td>Week 13</td>
<td>Lip Sync</td>
<td>50</td>
</tr>
<tr>
<td>Assignment 14</td>
<td>Week 14</td>
<td>Lip Sync Revised</td>
<td>50</td>
</tr>
<tr>
<td><strong>Final</strong></td>
<td>Week 16</td>
<td>Present Final Animation</td>
<td>300</td>
</tr>
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</table>
Grading Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>97 – 100</td>
<td>Outstanding achievement, given at the instructor’s discretion</td>
</tr>
<tr>
<td>A</td>
<td>93 – 100</td>
<td>Excellent achievement</td>
</tr>
<tr>
<td>A−</td>
<td>90 – 92.99</td>
<td>Very good performance and quality of work</td>
</tr>
<tr>
<td>B+</td>
<td>87 – 89.99</td>
<td>Good performance and quality of work</td>
</tr>
<tr>
<td>B</td>
<td>83 – 86.99</td>
<td>Modestly acceptable performance and quality of work</td>
</tr>
<tr>
<td>B−</td>
<td>80 – 82.99</td>
<td>Marginal acceptable performance and quality of work</td>
</tr>
<tr>
<td>C+</td>
<td>77 – 79.99</td>
<td>Unacceptable work (Core course must be repeated for credit)</td>
</tr>
<tr>
<td>C</td>
<td>73 – 76.99</td>
<td>Unacceptable work (Core course must be repeated for credit)</td>
</tr>
<tr>
<td>C−</td>
<td>70 – 72.99</td>
<td>Unacceptable work (Course must be repeated for credit)</td>
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<tr>
<td>D+</td>
<td>67 – 69.99</td>
<td>Unacceptable work (Course must be repeated for credit)</td>
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<td>D</td>
<td>63 – 66.99</td>
<td>Unacceptable work (Course must be repeated for credit)</td>
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<tr>
<td>D−</td>
<td>60 – 62.99</td>
<td>Unacceptable work (Course must be repeated for credit)</td>
</tr>
<tr>
<td>F</td>
<td>Below 60</td>
<td>Unacceptable work (Course must be repeated for credit)</td>
</tr>
</tbody>
</table>

No credits toward major, minor, or certificate requirements are granted for a grade below B−.

Late Work:

Class assignments must 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.

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.

CODE OF CONDUCT

All students should aspire to the highest standards of academic integrity. Using another student’s work on an assignment, cheating on a test, not quoting or citing references
correctly, or any other form of dishonesty or plagiarism shall result in a grade of zero on the item and possibly an F in the course. Incidences of academic misconduct shall be referred to the Department Chair and repeated violations shall result in dismissal from the program.

All students are responsible for reading, understanding, and applying the Code of Student Rights, Responsibilities and Conduct and in particular the section on academic misconduct. Refer to The Code > Responsibilities > Academic Misconduct at http://www.indiana.edu/~code/. All students must also successfully complete the Indiana University Department of Education “How to Recognize Plagiarism” Tutorial and Test. https://www.indiana.edu/~istd. You must document the difference between your writing and that of others. Use quotation marks in addition to a citation, page number, and reference whenever writing someone else’s words (e.g., following the Publication Manual of the American Psychological Association). To detect plagiarism instructors apply a range of methods, including Turnitin.com. http://www.ulib.iupui.edu/libinfo/turnitin

Academic Misconduct:

1. **Cheating:** Cheating is considered to be an attempt to use or provide unauthorized assistance, materials, information, or study aids in any form and in any academic exercise or environment.
   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, calculators, computers, and wireless communication devices.
   b. A student must not use another person as a substitute in the taking of an examination or quiz, nor allow other persons to conduct research or to prepare work, without advanced authorization from the instructor to whom the work is being submitted.
   c. A student must not use materials from a commercial term paper company, files of papers prepared by other persons, or submit documents found on the Internet.
   d. A student must not collaborate with other persons on a particular project and submit a copy of a written report that is represented explicitly or implicitly as the student’s individual work.
   e. A student must not use any unauthorized assistance in a laboratory, at a computer terminal, or on fieldwork.
   f. A student must not steal examinations or other course materials, including but not limited to, physical copies and photographic or electronic images.
   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 or program to whom the work is being submitted.
h. A student must not, without authorization, alter a grade or score in any way, nor alter answers on a returned exam or assignment for credit.

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 citation to the sources of information.

3. **Plagiarism:** Plagiarism is defined as presenting someone else’s work, including the work of other students, as one’s own. Any ideas or materials taken from another source for either written or oral use must be fully acknowledged, unless the information is common knowledge. What is considered “common knowledge” may differ from course to course.
   a. A student must not adopt or reproduce ideas, opinions, theories, formulas, graphics, or pictures of another person without acknowledgment.
   b. A student must give credit to the originality of others and acknowledge indebtedness whenever:
      1. directly quoting another person’s actual words, whether oral or written;
      2. using another person’s ideas, opinions, or theories;
      3. paraphrasing the words, ideas, opinions, or theories of others, whether oral or written;
      4. borrowing facts, statistics, or illustrative material; or
      5. offering materials assembled or collected by others in the form of projects or collections without acknowledgment

4. **Interference:** A student must not steal, change, destroy, or impede another student’s work, nor should the student unjustly attempt, through a bribe, a promise of favors or threats, to affect any student’s grade or the evaluation of academic performance. 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.

5. **Violation of Course Rules:** A student must not violate course rules established by a department, the course syllabus, verbal or written instructions, or the course materials that are rationally related to the content of the course or to the enhancement of the learning process in the course.

6. **Facilitating Academic Dishonesty:** A student must not intentionally or knowingly help or attempt to help another student to commit an act of academic misconduct, nor allow another student to use his or her work or resources to commit an act of misconduct.

**OTHER POLICIES**

1. **Right to revise:** The instructor reserves the right to make changes to this syllabus as necessary and, in such an event, will notify students of the changes immediately.
2. **IUPUI course policies:** A number of campus policies governing IUPUI courses may be found at the following link: [http://registrar.iupui.edu/course_policies.html](http://registrar.iupui.edu/course_policies.html)

3. **Classroom civility:** To maintain an effective and inclusive learning environment, it is important to be an attentive and respectful participant in lectures, discussions, group work, and other classroom exercises. Thus, unnecessary disruptions should be avoided, such as ringing cell phones engagement in private conversations and other unrelated activities. Cell phones, media players, or any noisy devices should be turned off during a class. Texting, surfing the Internet, and posting to Facebook or Twitter during class are generally not permitted. Laptop use may be permitted if it is used for taking notes or conducting class activities. Students should check with the instructor about permissible devices in class. IUPUI nurtures and promotes “a campus climate that seeks, values, and cultivates diversity in all of its forms and that provides conditions necessary for all campus community members to feel welcomed, supported, included, and valued” (IUPUI Strategic Initiative 9). IUPUI prohibits “discrimination against anyone for reasons of race, color, religion, national origin, sex, sexual orientation, marital status, age, disability, or [veteran] status” (Office of Equal Opportunity). Profanity or derogatory comments about the instructor, fellow students, invited speakers or other classroom visitors, or any members of the campus community shall not be tolerated. A violation of this rule shall result in a warning and, if the offense continues, possible disciplinary action.

4. **Bringing children to class:** To ensure an effective learning environment, children are not permitted to attend class with their parents, guardians, or childcare providers.

5. **Course Evaluations:** Course evaluations provide vital information for improving the quality of courses and programs. Students are urged to complete one course and instructor evaluation for each section in which they are enrolled at the School of Informatics and Computing with the following three exceptions: (a) The student has withdrawn from the course; (b) fewer than five students are enrolled in the section (in which case anonymity is impossible); and (c) the section is a laboratory that must be taken with a course having a different section number. Course evaluations are completed at [https://soic.iupui.edu/app/course-eval/](https://soic.iupui.edu/app/course-eval/). Course evaluations are open from the eleventh week. Course evaluations are anonymous, which means that no one can view the name of the student completing the evaluation. In addition, no one can view the evaluation itself until after the instructor has submitted the final grades for the course. In small sections, demographic information should be left blank, if it could be used to identify the student.

6. **Communication:** For classroom-based courses, instructor or teaching assistant should respond to emails by the end of the next class or, for online courses, within two Indiana University working days, which excludes weekends and holidays. The instructor should provide weekly office hours or accept appointments for face-to-face, telephone,
or teleconferenced meetings, and announce periods of extended absence in advance.

7. Email: Indiana University uses your IU email account as an official means of communication, and students should check it daily for pertinent information. Although you may have your IU email forwarded to an outside email account, please email faculty and staff from your IU email account.

8. 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 accommodations needed for the course. Students requiring accommodations because of a disability must register with Adaptive Educational Services (AES) and complete the appropriate AES-issued before receiving accommodations. The AES office is located at UC 100, Taylor Hall (Email: aes@iupui.edu, Tel. 317 274-3241). Visit http://aes.iupui.edu for more information.

9. Administrative Withdrawal: A basic requirement of this course is that students participate in all class discussions and conscientiously complete all required course activities and/or assignments. If a student is unable to attend, participate in, or complete an assignment on time, it is the student’s responsibility to inform the instructor. If a student misses more than half of the required activities within the first 25% of the course without contacting the instructor, the student may be administratively withdrawn from this course. Administrative withdrawal may have academic, financial, and financial aid implications. Administrative withdrawal will take place after the full refund period, and a student who has been administratively withdrawn from a course is ineligible for a tuition refund. Contact the instructor with questions concerning administrative withdrawal.

10. Emergency Preparedness: Safety on campus is everyone’s responsibility. Know what to do in an emergency so that you can protect yourself and others. For specific information, visit the emergency management website. http://protect.iu.edu/emergency

11. Student Advocate: The Student Advocate provides assistance to students with personal, financial, and academic issues. The Student Advocate Office is located in the Campus Center, Suite 350. The Student Advocate may also be contacted by phone at 317 274-4431 or by email at studvoc@iupui.edu. For more information visit http://studentaffairs.iupui.edu/advocate.

12. Counseling and Psychological Services (CAPS): Students seeking counseling or other psychological services should contact the CAPS office by phone at 274-2548 or email at capsindy@iupui.edu. For more information visit http://life.iupui.edu/caps/.

MISSION STATEMENT
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
● 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.