RTD 389 – 2D DIGITAL CHARACTER ANIMATION I

COURSE NUMBER: RTD 389  CREDIT HOURS: 3.0
SEMESTER/YEAR: FALL 2015  CLASS LOCATION: COMMUNICATIONS 0009B
CLASS MEETING DAYS: TUE & THUR  CLASS MEETING TIME: 9:35 AM – 10:50 AM
INSTRUCTOR: Reid Perkins-Buzo  OFFICE HOURS: 1:00 PM - 4:00 PM MON & THUR
COURSE TA OR COORDINATOR: None  COURSE WEBSITE: T Desire 2 Learn, learning management system

COURSE COMMUNICATIONS: Students can communicate directly with the instructor regarding the course material via e-mail (rperkinsbuzo@siu.edu) or through the learning management system.

REQUIRED TEXT:

ADDITIONAL RESOURCES:


COURSE DESCRIPTION: The main course goal is to instill an understanding and fluency in practical principles and techniques of 2D digital animation, with emphasis on character design and animation. Students learn 2D animation techniques and create two-dimensional animations for broadcast, web and interactive environments. In addition, students are exposed to other topics including vector vs bitmap image processing, using major file formats, user-driven interactive animations.

PREREQUISITE KNOWLEDGE AND SKILLS: None

COURSE GOALS AND/OR OBJECTIVES: By the end of the course, students will be able to:
1. Organize and design a 2D animation project.
2. Understand vector vs bitmap image processing.
3. Animate using key-frames and in-betweens.
4. Design a 2D character for animation.
5. Learn how to develop user-driven interactive animations.
# Detailed Course Schedule:

<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Readings &amp; Assignments</th>
</tr>
</thead>
</table>
| 1    | **Introduction and History of Animation**  
**Tuesday:**  
Introduction  
Precursors to true animation: Thaumatrope, Phenakistoscope, Zoetrope and Praxinoscope  
**Thursday:** Historical Milestones in animation  
Blackton, McCay, Sullivan, Fleischers, Disney  
Rise of the studios  
Golden Age and the Disney Strike  
UPA and the 50s: Television changes everything  
Rise of the Independents in the 60s  
Anime and Osamu Tezuka  
Crisis and Dissolution in the 70s  
European and Soviet Animation  
Reign of the Independents in the 80s  
Studios’ Digital Animation Strikes Back  
Reign of the Studios - with the Help of the Independents  
What’s next? | White xix – xxxiii  
8-25  
8-27  |
| 2    | **Basic principles of 2D Animation**  
**Tuesday:** Drawing principles  
How to hold your drawing instrument  
Basic shapes: lines, circles, squares  
Dimensionality: construction lines  | PDF:  
Williams 11-31, 74-75, 128-129  |
|      | **Thursday:** Motion Principles  
Hold shapes together with lines  
Lines of Action construct movement  
Lines of Motion show movement  
Contiguous motion  
Perspective and motion | 9-1  
9-3  |
### 3 Computers and Animation

**Tuesday:**
- Vector-based vs Pixel-based approaches
- Digital Brush tools
- Digital Pen tools
- Adjusting lines and contours
- Shape tools
- Fill tools

**Thursday:**
- Character Design Considerations
- Disney turn: front, three-quarters, side, back-three-quarters, back
- Drawing a Character Digitally
- Scanning a Hand-drawn Character and Converting
- Cleaning up your Character’s Appearance
- Character Breakdown Strategies for Digital Animation
- Breaking down a Character for Digital Animation

### 4 Storyboards and Storytelling

**Tuesday:**
- Storytelling and the Heart of Animation
- Script? Do we need one?
- Visual Storytelling: Thumbnails

**Thursday:**
- Why do we need Storyboards? What are they for?
- Storyboards and the Principles of Narrative Filmmaking
- Professional Storyboard Formats for Animation
- Studying the Script
- Drawing the Storyboard
- Using reference images
- Action between boards - How to show it
- Doing the Final Check

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Assignment 1 due (9-10-2015)
## Pose to Pose Methods

**Tuesday:**
- Charting the Time for the Animation
- Key, Breakdown and In-Between Positions
- Creating Key Positions

**Thursday:**
- Creating Breakdown Positions
- Registration of the Drawings
- Old School Practice of In-Betweening
- In-Betweening Digitally
- Motion Paths and Action Arcs
- Constructing Digital Motion Paths
- Timing Considerations on a Motion Path

### Bouncing Ball: the theory and practice

**Tuesday:**
- Weight, Mass, and Flexibility: Ball Material
- Charting the time
- Motion Path of Gravity: Digital Solutions

**Thursday:**
- Key Positions
- Squashing
- Stretching
- Timing the Bounces
- In-Betweening the Bounce Digitally
- Checking the Keys: Can they be improved?
- Digital Pencil Test
- Flour Sack

### Principles of 2D Animation: Character Movement

**Tuesday:**
- Character Walks: Moving the Lower Body
- Key Positions
- Passing Positions
- Checking the Lower Body Walk Cycle

**Thursday:**
- Character Walks: Moving the Upper Body
- Key Positions
- Passing Positions
- Checking the Upper Body Walk Cycle
- Run Cycles
- Quadruped Movement
### 8
#### Developing a character: Purpose guided design
**Thursday:**
What’s it for? A character has a purpose!
- Cute characters
- Wild characters
- Serious characters
- Digital Building Techniques for
  - Robots
  - Adults & Kids
- Animals
- Characters and Anticipation

**PDF:**
Williams 32-73 (Fall Break)

### 9
#### Audio Sync
**Tuesday:**
Audio basics
Scratch tracks
Do you need your Character to talk?

**Thursday:**
Digital Building Techniques for
- Body Language
- Facial Animation
- Lip Sync
- Dialog
- Putting it together
- Thinking about music

**White 161-193 Assignment 3 due (10-22-2015)**

### 10
#### Animatics
**Tuesday:**
Back to the story, back to the storyboards!
Editing a simple animatic
Using the script to refine the edit

**Thursday:**
Using Scratch audio
Coloring portions for visual punch
Utilizing movement in
- Backgrounds
- Props
- Characters
Using an animatic to pitch your story

**White 293-302**
<table>
<thead>
<tr>
<th>Week</th>
<th>Topic</th>
<th>Details</th>
</tr>
</thead>
</table>
| 11   | Compositing, Rendering & Additional Effects | **Tuesday:** Designing for Final Compositing Backgrounds: Color, Perspective, Motion Graphic issues Props: Shape, color, and contrast  
**Thursday:** Compositing Digital Techniques Layering Alpha and Transparency Background motion Depth of Field Motion Blur Visual Effects Rendering frames for the Final Edit Rendering for Games Finale Edit |
| 12   | 2D Graphics Animation | **Tuesday:** What is Motion Graphics? Motion Graphics in 2D Examples from classic movie titles, broadcast and games **Thursday:** Graphic Considerations: Elements: Shape, Color, Contrast, Texture Principles: Balance, Contrast, Value, Color Time Considerations Unity of form Rhythm and Repetition Titles: Type in Motion (with typography refresher) |
Interactive 2D animation

**Tuesday:**
What makes for good interactivity
Designing interactions with 2D elements
UX/UI considerations: Web, Mobile, Desktop

**Thursday:**
Creating 2D Interface elements:
Buttons
Drop-down menus
Heads-Up Displays
Ornaments
Characters as interface elements
Game interaction
Avatars
Designing Advertisements

Contemporary Thought on Animation with Screenings
(Thanksgiving Break)

Work Time for Assignment 5

Work Time for Assignment 5

Assignment 5 due Thursday
12-8
12-10
There is no Final Exam

GRADING SCALE:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>% Equivalency</th>
<th>GPA Equivalency</th>
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<tbody>
<tr>
<td>A</td>
<td>90 – 100%</td>
<td>4.0</td>
</tr>
<tr>
<td>B</td>
<td>80 – 89%</td>
<td>3.00</td>
</tr>
<tr>
<td>C</td>
<td>70 – 79%</td>
<td>2.00</td>
</tr>
<tr>
<td>D</td>
<td>60 – 69%</td>
<td>1.00</td>
</tr>
<tr>
<td>F</td>
<td>0 – 59%</td>
<td>0.00</td>
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Assignment Description and Grading Percentages:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment 1: Turn in a .fla file animating a simple geometric shape using lines of action and lines of movement</td>
<td>10%</td>
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<tr>
<td>Assignment 2 — Turn in a storyboard, done either digitally or by hand, depicting a one-minute (or less) story in 10 to 15 storyboards</td>
<td>10%</td>
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</tbody>
</table>
Assignment 3 — Turn in a .fla file illustrating the principles discussed in weeks 4 & 5 on Pose to Pose techniques and the Bouncing ball. **You should either do a bouncing ball animation or a flour sack (or something equivalent with the instructor’s permission).**

Assignment 4 — Turn in a .fla file of a character animating either a walk or run cycle

Assignment 5 — Turn in a .fla file that provides an animatic of the story you depicted in Assignment 2. Your animatic should have audio (but not necessarily lip-synced audio).

Class Participation — Attendance at classes is required. An attendance sheet will be circulated at class. It is the responsibility of the student to sign the sheet.

**COURSE POLICIES:**

**ATTENDANCE POLICY:**
   a. Regular class attendance is expected.
   b. At the sole discretion of the instructor, documented Emergencies or medical situations may be the only acceptable reasons for an excused absence. At the very least, students must contact the Instructor 24 hours before class time if they wish to be considered for an excused absence.
   c. Unexcused absences will accrue to the detriment of the portion of the final grade given for class participation.

**LATE ASSIGNMENT POLICY:**
   a. Any assignment turned in past the due date may lose up to 10% of the total point value of the assignment for each class day it is late.
   b. At the sole discretion of the instructor, late work may be penalized according to the late policy stated in part a immediately above this paragraph.

**Disclaimer:** This syllabus represents the instructor’s current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunities. Such changes, communicated clearly, are not unusual and should be expected.
IMPORTANT DATES *

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
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<tbody>
<tr>
<td>Semester Class Begins</td>
<td>08/24/2015</td>
</tr>
<tr>
<td>Last day to add a class (without instructor permission)</td>
<td>08/30/2015</td>
</tr>
<tr>
<td>Last day to withdraw completely and receive a 100% refund</td>
<td>09/06/2015</td>
</tr>
<tr>
<td>Last day to drop a course using SalukiNet</td>
<td>11/01/2015</td>
</tr>
<tr>
<td>Last day to file a complaint (for name to appear in Commencement program)</td>
<td>09/18/2015</td>
</tr>
<tr>
<td>Final examinations:</td>
<td>12/14--12/18/2015</td>
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Note: For outreach, internet, and short course drop/add dates, visit Registrar’s Academic webpage http://registrar.siu.edu/  

FALL SEMESTER HOLIDAYS
- Labor Day Holiday: 09/07/2015
- Fall Break: 10/10—10/13/2015
- Veterans Day Holiday: 11/11/2015

WITHDRAWAL POLICY ~ Undergraduate only
Students who officially register for a session may not withdraw merely by the stopping of attendance. An official withdrawal form needs to be initiated by the student and processed by the University. For the proper procedures to follow when dropping courses and when withdrawing from the University, please visit http://registrar.siu.edu/pdf/ugradcatalog1314.pdf

INCOMPLETE POLICY ~ Undergraduate only
An INC is assigned when, for reasons beyond their control, students engaged in passing work are unable to complete all class assignments. An INC must be changed to a completed grade within one semester following the term in which the course was taken or graduation, whichever occurs first. Should the student fail to complete the course within the time period designated, that is, by no later than the end of the semester following the term in which the course was taken or graduation, whichever occurs first, the incomplete will be converted to a grade of F and the grade will be computed in the student’s grade point average. For more information please visit: http://registrar.siu.edu/grades/incomplete.html

REPEAT POLICY
An undergraduate student may, for the purpose of raising a grade, enroll in a course for credit no more than two times (two total enrollments) unless otherwise noted in the course description. For students receiving a letter grade of A, B, C, D, or F, the course repetition must occur at Southern Illinois University Carbondale. Only the most recent (last) grade will be calculated in the overall GPA and count toward hours earned. See full policy at http://registrar.siu.edu/pdf/ugradcatalog1314.pdf

GRADUATE POLICIES
Graduate policies often vary from Undergraduate policies. To view the applicable policies for graduate students, please visit http://gradschool.siu.edu/about-us/grad-catalog/index.html

DISABILITY POLICY
Disability Support Services provides the required academic and programmatic support services to students with permanent and temporary disabilities. DSS provides centralized coordination and referral services. To utilize DSS services, students must come to the DSS to open cases. The process involves interviews, reviews of student-supplied documentation, and completion of Disability Accommodation Agreements. http://disabilityservices.siu.edu/

PLAGIARISM CODE

MORRIS LIBRARY HOURS
http://www.library.siu.edu/about

SAFETY AWARENESS FACTS AND EDUCATION
Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here: http://safe.siu.edu

SALUKI CARES
The purpose of Saluki Cares is to develop, facilitate and coordinate a university-wide program of care and support for students in any type of distress—physical, emotional, financial, or personal. By working closely with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For Information on Saluki Cares: (618) 453-5714, or siucares@siu.edu, http://salukicares.siu.edu/index.html

EMERGENCY PROCEDURES
Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. We ask that you become familiar with the SIU Emergency Response Plan and Building Emergency Response Team (BERT) programs. Please reference the Building Emergency Response Protocols for Syllabus attachments on the following pages. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.

INCLUSIVE EXCELLENCE
SIU contains people from all walks of life, from many different cultures and sub-cultures, and representing all strata of society, nationalities, ethnicities, lifestyles, and affiliations. Learning from and working with people who differ is an important part of education as well an essential preparation for any career. For more information please visit: http://www.inclusiveexcellence.siu.edu/

LEARNING AND SUPPORT SERVICES
Help is within reach. Learning support services offers free tutoring on campus and math labs. To find more information please visit the Center for Learning and Support Services website:
- Tutoring: http://tutoring.siu.edu/
- Math Labs http://tutoring.siu.edu/math_tutoring/index.html

WRITING CENTER
The Writing Center offers free tutoring services to all SIU students and faculty. To find a Center or Schedule an appointment please visit http://write.siu.edu/

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY
Our office's main focus is to ensure that the university complies with federal and state equity policies and handles reporting and investigating of discrimination cases. For more information visit: http://diversity.siu.edu/

Additional Resources Available:
- SALUKINET: https://salukinet.siu.edu/cp/home/displaylogin
- ADVISEMENT: http://advisement.siu.edu/
- SIU ONLINE: http://online.siu.edu/

Fall 2015 R.O'Rourke
Building Emergency Response Protocols for Syllabus:

University’s Emergency Procedure Clause:

Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings on campus, available on BERT’s website at www.bert.siu.edu, Department of Public Safety’s website www.dps.siu.edu (disaster drop down) and in the Emergency Response Guideline pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency. The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.

Students With a Disability:

Instructors and students in the class will work together as a team to assist students with a disability safely out of the building. Students with a disability will stay with the instructor and communicate with the instructor what is the safest way to assist them.

Tornado:

During the spring semester we have a Storm Drill.

Pick up your belongings and your instructor will lead you to a safe area of the basement. No one will be allowed to stay upstairs. Stay away from windows. The drill should not last more than 10 minutes. You must stay with your instructor so he/she can take roll. Students need to be quiet in the basement as the BERT members are listening to emergency instructions on handheld radios and cannot hear well in the basement.

Fire:

During the fall semester we have a Fire Drill.

Pick up your belongings and your instructor will lead you to either the North or South parking lot depending on what part of the building your class is in. You must stay with your instructor so he/she can take roll. As soon as the building is all clear, you will be allowed to return to class.

These drills are to train instructors and the Building Emergency Response Team to get everyone to a safe place during an emergency.

Bomb Threat:

If someone calls in a bomb threat, class will be suspended and students will be asked to pick up their belongings, evacuate the building and leave the premises. Do not leave anything that is yours behind. We will not allow anyone back into the building until the police and bomb squad give us an all clear. DO NOT USE YOUR CELL PHONES. Some bombs are triggered by a cell phone signal.
Shooter in the Building:

If it is safe to leave, move to a safe area far from the building away from where the shooter is located. If anyone has any information about the shooter, please contact the police after they have gone someplace safe.

If it is not safe to leave, go into a room, lock the door and turn out the lights. Everyone should spread out and not huddle together as a group. Don't stand in front of the door or in line of fire with the door. Students' chair and desks should be piled in front of the glass and door as a barricade and the teacher's desk, podium and anything movable can be pushed against the door. This is intended to slow down any attempts to enter the classroom. If it looks like the shooter is persistent and able to enter, make a lot of noise and have the students use everything in their backpacks to throw at the shooter to distract him.

Silence all cell phones after one person in the room calls the police and informs them of their location and how many people are in the room. Be quiet and wait for the police to arrive. The police are looking for one or more shooters, and they have no way of knowing if the shooter is in the room people are hiding in. For this reason, when the police enter the room, no one should have anything in his/her hands and each person MUST raise his/her hands above his/her head.

Earthquake:

In the event of an earthquake, you are advised to take cover quickly under heavy furniture or crouch near an interior wall or corner and cover your head to avoid falling debris. Outside the building are trees and power lines and debris from the building itself that you will need to stay away from. In the building, large open areas like auditoriums are the most dangerous. Do not try to escape on a stairway or elevator. Do not hide under a stairway. We do not recommend that you stand in a doorway because the door could shut from the vibrations and crush your fingers trapping you there.

Rave Mobile Safety Alert System:

We recommend that you sign up for the Rave Mobile Safety Alert System. It is a new system that replaces the WENS system to alert you through emergency text messages on your cell phone and emails for emergencies on campus, weather reports and emergency school closures. You have to sign up. If you were signed up for WENS it does not roll over. You have to sign up for Rave Mobile Safety Alert System. Go to Saluki Net, go to my records tab, under SIUC Personal Records, click on View My SIUC Student Records, Under Main Menu click on Personal Information, click on View and Update Addresses and Phones, in the middle of the page click [Update Addresses and Phones], under phones click Primary: This will take you to Update Addresses and Phones – Update/Insert, under primary phone number for this address put in your cell phone and submit. For more information, visit dps.siu.edu, contact SalukiTech at 453-5155 or salukitech@siu.edu.

CPR/Defibrillator and First Aid Class:

If you would like to take a CPR/Defibrillator and/or First Aid class, contact LaVon Donley-Cornett, lavong@siu.edu or call 453-7473.
Women's Self Defense Classes are offered to female students faculty and staff by the Department of SIU Public Safety. For more information contact Officer Mary Stark marys@dps.siu.edu.