Department of Computer Science

ACST 2301 - Problem Solving and Digital Game Design

Course Syllabus

| Instructor | Dr. Sarah M. North, Instructor  
Email: snorth@kennesaw.edu  
Cell: 678-520-6102  
Office: 470-578-7774  
Office: Kennesaw Campus (Chastain Pointe 206 J)  
Office hours:  T-Th 11:00am -12:30pm  
Other hours by appointment only |
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<tbody>
<tr>
<td>Location</td>
<td>Kennesaw Campus (Chastain Pointe 206 J)</td>
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Class Design
The course will be delivered as lectures and lab sessions with supporting quizzes and assignments. All lecture notes will be provided via KSU Desire2Learn Access [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/)

Textbook & Resources

**Required:**

**Supplemental resources: Software**
- This course revolves around writing, compiling, and running programs. The needed software is available for use in the KSU computer laboratories, but most students find it to be much more convenient to be able to do the necessary work on their own computers. Instructions for installing are on the class website and provided by the instructor.

**Laboratory Supplemental**
- [JDK Download](http://www.greenfoot.org/download)

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<th>Prerequisite</th>
<th>ENGL 0099, READ 0099 if required</th>
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Course Description
This course is an introduction to programming and problem solving, emphasizing the analysis of problems and design of solutions. Will also include an introduction to a programming environment and computer game design. Coverage will also include standard programming logic structures, object-oriented design, prototyping, game design approach, Agile development, real-time constraints, threaded objects, inter-object communication, object inheritance, alarms, event management, elementary graphics, beta-testing, play-balance, and user-interface design.

<table>
<thead>
<tr>
<th>Learning Outcomes</th>
<th>After successful completion of this course, a student will learn:</th>
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<tbody>
<tr>
<td>1.</td>
<td>Demonstrate a broad understanding of foundational programming concepts, including variables, arithmetic and boolean operators, conditional expressions, methods, inheritance, loops and randomness.</td>
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<td>2.</td>
<td>Identify key elements of good game design</td>
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<td>3.</td>
<td>Describe capabilities of a game design engine</td>
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<td>4.</td>
<td>Design, construct, and program computer games</td>
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<td>5.</td>
<td>Understand the multidisciplinary nature of game design, and understand how platform constraints and affordances influence game design.</td>
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<td>6.</td>
<td>Create their own single- and multiplayer computer games using a specific game engine (Greenfoot) and a specific programming language (Java).</td>
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SPECIAL NOTICE:
This course will make use of a laboratory and assign relevant lab work and exercises. In order to participate in any of the course labs or other assignments (required to earn a passing grade in this course), each student is advised to locate and read KSU’s Information Technology Computer Usage Polices (which can be found at http://www.kennesaw.edu/its/compuse.shtml

Table of Contents
Module 1 - Chapter 1: Introduction to Java, Algorithms and Programming Logic (Getting to know Greenfoot )
Module 2 - Chapter 2: Classes and Methods – The First program: Little Crab Scenario
Module 3 - Chapter 3: Methods, Actors and the World: Improving Scenario/Behavior
Chapter 4: Finishing the Crab Game by adding Objects and animation images
Module 4 - Chapter 5: Simulations: Making Music - An on- Screen piano
Module 5 - Chapter 6: Simulations: Physics - Interactive Objects
Module 6 - Chapter 7: Collision Detection and Scrolling Games
Module 7 - Chapter 8: Creating/Modifying Images and Sound
Module 8 - Chapter 9: Maze Games
- Chapter 10: Game Design Principles

Note: Modules are Structured via via KSU Desire2Learn Access http://d2l.kennesaw.edu/

Attendance:
The Instructor expects your attendance at each and every class/lab and discussion session via http://d2l.kennesaw.edu/; Grade performance is a demonstrated function of attendance, preparation and participation. You can get behind very easily by skipping classes, resulting in a poor understanding of the material, which will show up as a poor grade for the class. Any class sessions missed by the student are the student's responsibility to make up, not the instructor's. Late arrival that causes disruption, early departure that causes disruption, excessive conversation among students (a disruption in its own right), inappropriate use of electronic devices that cause disruptions and other actions that disrupt the classroom are unacceptable.

If a student missed more than 2 classes, the student’s final grade may be decreased.

Evaluation criteria explained:
- Students are expected to be active participants in each class meeting. Full credit for participation will be extended to students who regularly ask questions, share observations, and contribute relevant personal experiences.
- Examinations will consist of program assignments and technological comprehension that cover the lecture material, and assigned readings.
- Students will be given specific guidance on the amount of collaboration permitted for each assignment.

Quizzes:
Quizzes will be given throughout the semester, at a rate of approximately 1 or 2 per month. The quizzes will be combinations of objective and short-answer questions. Makeup quizzes will not be given. Any class material missed by the student is the student's responsibility to acquire.

Exams:
There will be tests including midterm examinations and a cumulative final examination. The content will come from the text and other material presented in lecture sessions as well as labs. Note that material presented in class will supplement the assigned reading. Therefore, class attendance and good note taking are essential tactics for success. Students will not be allowed to bring class notebooks to the exams, nor will any other similar materials be permitted.
There will be no make-up examinations. It is the student's responsibility to arrange for an excused absence before the exam. A grade of zero will be assigned for all exams missed without an excused absence. If an emergency arises on the day of a midterm, and the instructor deems that the absence is excused, then the weight of the final exam may be increased to replace the midterm. **Exam Schedule**

**Assignments:**
Assignments (Eight Modules assignments, including Group Project) are due throughout the term. Each of these assignments is weighted as noted in the assessment section below.
You lose 20% of your score if you turn in a homework assignment late, and late assignments will only be accepted up to one week after the due date! Late lab assignments are not accepted!

Refer to detail via [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/)

**Withdrawal Policy:**
The last day to **withdraw** without academic penalty is **shown on the course schedule**. Ceasing to attend class or oral notice thereof DOES NOT constitute official withdrawal from the course. Students who simply stop attending classes without officially withdrawing usually are assigned failing grades. Students wishing to withdraw after the scheduled change period (add/drop) must obtain and complete a withdrawal form from the Academic Services Department in the Registrar's Office.

**Incomplete Policy:**
I— The grade of “I” denotes an incomplete grade for the course, and will be awarded only when the student has done satisfactory work up to the last two weeks of the semester, but for nonacademic reasons beyond his/her control is unable to meet the full requirements of the course. A grade of “I” must be removed (by completing the course requirements) within one calendar year from the end of the semester in which the “I” was originally assigned. [http://www.kennesaw.edu/foreignlanguage/facultyinfo/IncompletePolicy.html](http://www.kennesaw.edu/foreignlanguage/facultyinfo/IncompletePolicy.html)

**Disability Statement:**
Any student with a documented disability needing academic adjustments is requested to notify the instructor as early in the semester as possible, and must do so before the mid-term exam. Verification from KSU disabled Student Support Services is required. All discussions will remain confidential. [http://www.kennesaw.edu/stu_dev/dsss/dsss.html](http://www.kennesaw.edu/stu_dev/dsss/dsss.html)

**Enrollment Policy:**
Only those students who are enrolled in the class may attend lectures, receive assignments, take quizzes and exams, and receive a grade in the class. If a student is administratively withdrawn from this course, they will not be permitted to attend class nor will they receive any grade for the class.

**Electronic Devices:**
In order to minimize the level of distraction, all watches, beepers and cellular phones must be on quiet mode during class meeting times. Students who wish to use a computer/PDA for note taking need prior approval of the instructor since key clicks and other noises can distract other students. Recording of lectures by any method requires prior approval of the instructor.

**Email Messages:**
Remember to put the course name and section number in the subject field of every e-mail message that you send me. E-mail messages that are missing this information are likely to be automatically redirected to a folder I seldom check.
Grades will be calculated as follows:

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<tr>
<td><strong>Attendance</strong></td>
<td>20</td>
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<tr>
<td>Lab and Homework Assignments – Mod_1 – Mod_8 - &amp; Final Project</td>
<td>170</td>
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<tr>
<td><strong>Quizzes</strong> (5 quizzes, 10 points each)</td>
<td>50</td>
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<tr>
<td>Test 1</td>
<td>80</td>
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<tr>
<td>Test 2</td>
<td>80</td>
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<tr>
<td>Final Exam</td>
<td>100</td>
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<tr>
<td><strong>Total</strong></td>
<td>500</td>
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Grading Scale:

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<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Point System</th>
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<tbody>
<tr>
<td>A</td>
<td>90% - 100%</td>
<td>450 - 500</td>
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<tr>
<td>B</td>
<td>80% - 89%</td>
<td>400 - 449</td>
</tr>
<tr>
<td>C</td>
<td>70% - 79%</td>
<td>350 - 399</td>
</tr>
<tr>
<td>D</td>
<td>60% - 69%</td>
<td>300 - 349</td>
</tr>
<tr>
<td>F</td>
<td>59% or below</td>
<td>299 - 0</td>
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Student Course Evaluation:

A standard questionnaire (described below) will be administered during the last two weeks of the semester in all classes. Additional questions developed by the college or instructor(s) may be included as well. It is important that each student provide meaningful feedback to the instructor(s) so that changes can be made in the course to continually improve its effectiveness. We value student feedback about the course, our teaching styles, and course materials, so as to improve our teaching and you’re learning. At a minimum, the following two questions will be asked:

1. Identify the aspects of the course that most contributed to your learning (include examples of specific materials, exercises and/or the faculty member's approach to teaching and mentoring), and
2. Identify the aspects of the course, if any that might be improved (include examples of specific Materials, exercises and/or the faculty member's approach to teaching and mentoring).

Student Email and Web Account Access:

KSU is moving towards a central authentication server that will allow one username and password to be used by all KSU users to access an increasing variety of applications (email, GeorgiaView etc.) This unified network identification is referred to as your "NetID". The new source for university-provided email and web space for students will be located at students.kennesaw.edu. All students will have access to this system once they have established their NetID. This system will provide email service through a web based interface, FTP and SFTP.

How to Activate your NetID:

To activate your NetID go to http://netid.kennesaw.edu and click on "Sign up Now!" link. You will be asked to provide information to verify your identity and set your password. This password will only be for NETID enabled applications.

How to Look Up a NetID:

After you have activated your NetID, you can look up other users by logging into http://netid.kennesaw.edu and clicking on Directory Search.

Web Address:

For student web address, your NETID in combination with the new server address would look like http://students.kennesaw.edu/~netid. If you have problems please call the Service Desk at ext. 6999 or e-mail service@kennesaw.edu.
**Acquiring Final Grades:**
In an effort to better utilize our technology resources, Kennesaw State University has instituted the reporting of end of term grades by phone. This is in addition to the web version of grades, which has been in effect for several terms. All current semester term students may call 470-578-4315 and select Option Number 4 to secure their end of term grades. With this new development, printed grade reports will not be mailed at the end of the term. Students needing verification of grades or enrollment should request either an official transcript or enrollment verification through the Office of the Registrar.

**Availability of On-Campus Computer Labs: Clendenin Building (CL) Room 3060:**
The lab in CL 3060 of the Computer Science Building is open as listed on the email. See the display note and e-mail announcements.

**CS Department Policies:**
Students are minded that the CS Department has certain policies in place that govern practices within the department. Including:

- All courses used toward any undergraduate degree in the CS Department must be completed with an assessed performance grade of "C" or better. This means that all prerequisite courses from the CS Department must have been completed with a "C" or better in order for a student to enter the next course in a sequence.
- All requests for course overloads must be made through the department chair's office and CS advisor. The Instructor of any course is not permitted to authorize course overloads.
- All requests for prerequisite bypasses must be made through the department chair's office. The Instructor of any course is not permitted to authorize course overloads.
- All students are encouraged to register their current choice of major using the department change process. Students who are not recorded under their intended major may find that they may be limited from registering for courses they require to complete their intended program of study.

To answer any questions about these or other departmental policies, please contact the chair's office.

**Academic Integrity Statement:**
Every KSU student is responsible for upholding the provisions of the Student Code of Conduct, as published in the Undergraduate and Graduate Catalogs. Section II of the Student Code of Conduct addresses the University's policy on academic honesty, including provisions regarding plagiarism and cheating, unauthorized access to University materials, misrepresentation/falsification of University records or academic work, malicious removal, retention, or destruction of library materials, malicious/intentional misuse of computer facilities and/or services, and misuse of student identification cards. Incidents of alleged academic misconduct will be handled through the established procedures of the University Judiciary Program, which includes either an "informal" resolution by a faculty member, resulting in a grade adjustment, or a formal hearing procedure, which may subject a student to the Code of Conduct's minimum one semester suspension requirement.

Students are encouraged to study together and to work together on class assignments and lab exercises; however, the provisions of the STUDENT CONDUCT REGULATIONS, II. Academic Honesty, KSC Undergraduate Catalog will be strictly enforced in this class. Frequently students will be provided with "take-home" exams or exercises. It is the student’s responsibility to ensure they fully understand to what extent they may collaborate or discuss content with other students. No exam work may be performed with the assistance of others or outside material unless specifically instructed as permissible. If an exam or assignment is designated "no outside assistance" this includes, but is not limited to, peers, books, publications, the Internet and the WWW.
**Acknowledgment and Acceptance of Academic Integrity Statement:**
In any academic community, certain standards and ethical behavior are required to ensure the unhindered pursuit of knowledge and the free exchange of ideas. Academic honesty means that you respect the right of other individuals to express their views and opinions, and that you, as a student, not engage in plagiarism, cheating, illegal access, misuse or destruction of college property, or falsification of college records or academic work. As a member of the Kennesaw State University academic community you are expected to adhere to these ethical standards. You are expected to read, understand and follow the code of conduct as outlined in the KSU graduate and undergraduate catalogs.

You need to be aware that if you are found guilty of violating these standards you will be subject to certain penalties as outlined in the college judiciary procedures. These penalties include permanent expulsion from KSU. Students are required to complete the Academic Integrity Quiz in GeorgiaView Vista to acknowledge the receipt of this syllabus and to acknowledge that they agree to abide by the class policies and the academic integrity policies of the University.

**Tentative Course Schedule:**
Please see the link from the [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/) for the course schedule. It will be updated online

**Computer Science Department Policies:**
Students are minded that the Computer Science Department has certain policies in place that govern practices within the department. Including:

- All courses used toward any undergraduate degree in the Computer Science Department must be completed with an assessed performance grade of "C" or better. This means that all prerequisite courses from the Computer Science Department must have been completed with a "C" or better in order for a student to enter the next course in a sequence.
- All requests for course overloads must be made through the department chair’s office at [http://ccse.kennesaw.edu/cs/](http://ccse.kennesaw.edu/cs/). The Instructor of any course is not permitted to authorize course overloads.
- All requests for prerequisite bypasses must be made through the department chair’s office at [http://ccse.kennesaw.edu/cs/](http://ccse.kennesaw.edu/cs/). The Instructor of any course is not permitted to authorize course overloads.
- All students are encouraged to register their current choice of major using the department change process at [http://ccse.kennesaw.edu/cs/](http://ccse.kennesaw.edu/cs/). Students who are not recorded under their intended major may find that they may be limited from registering for courses they require to complete their intended program of study.
- To answer any questions about these or other departmental policies, please contact the chair’s office
## Tentative Course Schedule
**Subject to Change**

### Dr. Sarah North
snorth@kennesaw.edu

<table>
<thead>
<tr>
<th>Every Two Weeks Modules &amp; Due Dates</th>
<th>Course Assignments</th>
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| **1** Module_1                      | Welcome - Login to Vista and overview [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/)  
Module 1  
Chapter 1 - Introduction to Java, Algorithms and Programming Logic  
(Getting to know Greenfoot)  
- Lectures/Lab/Programming Assignments  
  **Refer to D2L for the due date [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/)**  
**Quiz_1** - Ch_1 (Refer to D2L for due date) |
| **2** Module_2                      | Module 2  
Chapter 2 – Classes and Methods – The First program: Little Crab Scenario  
- Lectures/Lab/Programming Assignments  
  **Refer to D2L for the due date [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/)**  
**Quiz_2** – Ch_2 (Refer to D2L for due date) |
| **3** Module_3                      | Module 3  
Chapter 3 - Methods, Actors and the World: Improving Scenario/Behavior  
Chapter 4: Finishing the Crab Game by adding Objects and animation images  
- Lectures/Lab/Programming Assignments  
  **Test #1 - Ch_1-Ch_3 Test_1 Refer to D2L for the due date [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/)** |
| **4** Module_4                      | Module 4  
Chapter 5 - Simulations: Making Music - An on- Screen piano  
- Lectures/Lab/Programming Assignments  
  **Refer to D2L for the due date [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/)**  
**Quiz_3** - Ch_3 (Refer to D2L for due date) |
| **5** Module_5                      | Module 5  
Chapter 6 - Simulations: Physics - Interactive Objects  
- Lectures/Lab/Programming Assignments  
  **Refer to D2L for the due date [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/)**  
**Quiz_4** - Ch_4 (Refer to D2L for due date) |
| **6** Module_6                      | Module 6  
Chapter 7 – Collision Detection and Scrolling Games  
- Lectures/Lab/Programming Assignments  
  **Test_2 Refer to D2L for the due date [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/)** |
| **7** Module_7                      | Module 7  
Chapter 8 - Creating/Modifying Images and Sound  
- Lectures/Lab/Programming Assignments  
  **Refer to D2L for the due date [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/)**  
**Quiz # 5 - Ch_5 (Refer to D2L for due date)**  
**Group Project Presentation** |
| **8** Module_8                      | Module 8  
Chapter 9 – Chapter 9: Maze Games  
Chapter 10 – Game Design Principles  
- Lectures/Lab/Programming Assignments – JAVA Programming  
**Group Project Presentation - (Refer to D2L for due date)**  
**Final Exam Comprehensive (Refer to D2L for the due date [http://d2l.kennesaw.edu/](http://d2l.kennesaw.edu/))** |