

## **COURSE SYLLABUS**

**CAMPUS NAME:** Ankeny

**COURSE TITLE:** Intro to Programming Logic

**COURSE NUMBER:** CIS125

**SECTION NUMBER & CRN:** WW2 - 33004

### **INSTRUCTOR INFORMATION**

**NAME:** Dr. Matthew Tan Creti

**EMAIL ADDRESS:** metancreti@dmacc.edu

**PHONE NUMBER:** Contact me by email.

**OFFICE LOCATION:** I do not have a permanent office on campus, see below about making appointments.

**OFFICE HOURS/APPOINTMENTS:** There are no scheduled office hours, contact me by email to make an appointment.

**INSTRUCTOR INTRODUCTION:** I am an independent software engineering consultant with offices at the Iowa State Research Park in Ames, Iowa. I am also a co-founder of an IoT security and reliability focused startup called SensorHound located at the Purdue University Research Park in West Lafayette, Indiana. In 2015 I received the PhD in Computer Engineering from Purdue University, before that I received undergraduate degrees in Computer Science and Electrical Engineering from the University of Iowa. This is my first time teaching, I hope you enjoy being introduced to computer programming as much as I enjoy sharing my years of experience. Outside of work, my interests include road biking (I completed my first RAGBRAI last year), cross-country skiing (when the snow is deep enough I ski 5 miles to work at my Ames office) and woodworking (I am currently restoring a 1916 upright mahogany piano).

**BLACKBOARD:** <https://dmacc.blackboard.com/>

### **COURSE INFORMATION**

**SEMESTER/YEAR:** Summer 2019

**DATE SYLLABUS CREATED AND/OR REVISED:** 05/20/2019

**DAYS & TIME & LOCATION:** This is an online section, there are no required meeting times

**COURSE DESCRIPTION & CREDITS:**

<https://www.dmacc.edu/Schedule/Pages/coursedescriptions.aspx>

**PREREQUISITES:** None

**COURSE COMPETENCIES:** <https://www.dmacc.edu/competencies>

**COURSE OVERVIEW:** This course provides students with a firm foundation in problem-solving methods in computer programming and facilitates the development of good structured programming skills for solving business problems. Students will define and analyze problems, design computer solution algorithms and prove the correctness of the solution.

**STUDY EXPECTATIONS/TIPS:** To do well in this class, you must do your assigned work regularly (see schedule and dateline on the last pages). Computer programming is a skill, like playing a musical instrument or speaking a foreign language, the only way to become proficient is through many hours of practice. To become comfortable with the material covered in this introductory course, students should expect to devote 4 hours of study time per week. If you miss any lecture, it is your responsibility to obtain the notes from a classmate as soon as possible. Then review the missed notes and ask the instructor any questions on the missed material as soon as possible. The content of this course builds on itself throughout the semester. Consequently, it is important that students master early concepts, as they will become building blocks for concepts introduced later in the course. Students should seek extra help (tutoring, come in to office hours, etc.) as soon as possible if they feel that they are getting behind on the course material.

## **TEXTBOOKS & MATERIALS**

**REQUIRED TEXTBOOKS & ISBN:** Just Enough Programming Logic and Design, 2nd Edition, eBook. Farrell, 2013, Cengage, Boston, MA. ISBN: 9781133992066 (includes digital access through VitalSource)

**REQUIRED MATERIALS:** Internet access

**OPTIONAL BOOKS/MATERIALS:** None

### **SOFTWARE APPLICATIONS:**

No software applications licensed from or to DMACC are required for this class.

Software notice: "All the software used in this class is copyrighted; therefore, it is not for distribution, copying, or personal use. This software is the property of Des Moines Area Community College."

### **OTHER FREE SOFTWARE DEVELOPMENT TOOLS:**

- Compiler and runtime engine: Java SE Development Kit 8 (JDK8) <http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>
- Integrated Development Environment (IDE): Eclipse <https://www.eclipse.org/downloads/>

## **COURSE POLICIES**

### **ATTENDANCE/PARTICIPATION:**

- You are expected to log into your online course minimally three times per week.
- Be active and present in the course – participating in discussions and projects - both face-to-face and in Blackboard.
- Dedicate sufficient time outside of class in order to be prepared for class, through readings, exercises and other learning experiences.
- Check your DMACC email at least three times per week.

- Ask questions of material that you don't understand and answer questions for material that you do understand.
- Participate in discussion boards, blogs and/or journals before the due date.
- Submit assignments and complete exams/tests before they are due in order to give yourself adequate time should a problem arise.
- Have access to a dependable computer and Internet connection.
- Have an available computer with an IDE and JDK installed and ready for use outside of the classroom
- Have a back-up plan in case the computer or connection fails.
- Communicate with me regarding any issues with course materials, grades, or technical issues.
- Use your DMACC email address to communicate with me.
- Call or email the DMACC Helpdesk with any technical issues (post this number/email address on your computer & program it into your phone).
- Put forth your best effort and accept responsibility for your learning.

Please note that this course is completely online. You do not have to attend a course on campus or use a proctor for any of your exams. You can work on this course in Iowa or England, as long as you have a computer and Internet connection. It is because of this convenience that I expect you to be prepared, present and active online.

**GRADING CRITERIA:** Based on percentage of points possible accumulated throughout the course. Points will be awarded for exams, quizzes, assignments, projects and participation.

- A = 93-100%
- A- = 90-92%
- B+ = 87-89%
- B = 83-86%
- B- = 80-82%
- C+ = 77-79%
- C = 73- 76%
- C- = 70-72%
- D+ = 67-69%
- D = 63-66%
- D- = 60-62%
- F = 0-59%

Providing you with feedback in my top priority. You can expect the following turn-around time:

- Assignment, blogs, journals, wikis & discussion boards grades and feedback – within 3 days of the due date
- Tests & Quizzes – within 2 days of the due date
- Final project – within 5 days of the due date
- Late work – within 7 days from when you submitted the work to me

I will use the announcement section in Blackboard and in-class announcements to communicate changes in the schedule or when grades for a unit/assignment are posted. Please note that the final grades in My Grades will not be 100% official until I post an

announcement indicating they are official. If you have questions or see a discrepancy throughout the term, please email me ASAP so I can investigate it.

**CLASSROOM CONDUCT:** <https://www.dmacc.edu/handbook>

You are expected to be respectful and courteous to your classmates and instructors in all classes at DMACC. Our class will determine our classroom expectations during our first meeting time.

**MISSED EXAMS:** No makeup exams, quizzes or projects will be given, except in cases of extreme circumstances to be determined by the instructor. A zero score will be awarded for missed exams, quizzes or projects. If an exam or quiz has a time limit, students who exceed the time limit will have two points deducted from their score for each minute beyond the time limit.

**LATE ASSIGNMENTS:** Each assignment will have a due date. After the due date, 50 percent will be deducted for each late assignment. No credit after assignment is 7 days late. No credit on any assignments after the last assignment (final project) at the end of the term. Late assignments must be submitted via the appropriate location in Blackboard. If the assignment is not available, late work is no longer being accepted for it. It is the responsibility of the student to retrieve assignments from Blackboard before the weekly due date and to submit assignments using the correct links. No late work will be accepted for the final week of class.

**EXTRA CREDIT:** No extra credit for late assignments. If offered, extra credit opportunities are offered equally to the class and awarded at the discretion of the instructor. Extra credit offered in-class is not eligible for students who were not in class attendance during the class meeting when the extra credit opportunity was distributed.

**STUDY EXPECTATIONS:** Students are expected to have completed any assigned readings, videos and activities in the module/week and be prepared to discuss the assigned material or participate in online activities when they are available. Plan to spend 10+ hours on our course per week.

**CLASS CANCELLATION PROCEDURE:** It is the responsibility of each faculty member to notify their students (in addition to their dean or provost) through some predetermined means if they must postpone or cancel a specific class. Class cancellations will be announced on blackboard and a notification email will also be sent out through blackboard.

**ACADEMIC DISHONESTY/PLAGIARISM:** It is important for you to be familiar with and follow DMACC's Academic Misconduct policy. Students are encouraged to review DMACC's Academic Misconduct Policy online at [https://www.dmacc.edu/student\\_services/int/Procedures/ES4670\\_Final.pdf](https://www.dmacc.edu/student_services/int/Procedures/ES4670_Final.pdf).

## **SUPPORT SERVICES/ACCOMMODATIONS**

**SERVICES FOR STUDENTS WITH DISABILITIES:** <https://www.dmacc.edu/disabilities>

Any student with a documented disability who requires reasonable accommodation should contact the Disability Services Coordinator at **515-964-6850** or the counseling & advising office on any campus to apply for services.

## **COURSE SYLLABUS**

**DISCLAIMER:** “This syllabus is representative of materials that will be covered in this class; it is not a contract between the student and the institution. It is subject to change without notice. **All students are strongly encouraged to visit MyDMACC portal to review policies and procedures.** Any potential exceptions to stated policies and requirements will be addressed on an individual basis and only for reasons that meet specific requirements. If you have any problems related to this class, please feel free to discuss them with me.”

## **NONDISCRIMINATION STATEMENT**

Des Moines Area Community College shall not engage in nor allow discrimination covered by law against any person, group or organization. This includes in its programs, activities, employment practices, or hiring practices, and harassment or discrimination based on race, color, national origin, creed, religion, sex, sexual orientation, gender identity, age, disability, genetic information (in employment) and actual or potential parental, family or marital status. Veteran status in educational programs, activities, employment practices, or admission procedures is also included to the extent covered by law.

Individuals who believe they have been discriminated against may file a complaint through the College Discrimination Complaint Procedure. Complaint forms may be obtained from the Campus Provost's office, the Academic Deans' office, the Judicial Officer, or the EEO/AA Officer, Human Resources. ADA questions and concerns may be directed to the Section 504/ADA Coordinator at 2006 S. Ankeny Blvd, Bldg. 6, Ankeny, IA 50023, phone 515/964-6857, [dso@dmacc.edu](mailto:dso@dmacc.edu). Title IX questions and concerns may be directed to the Title IX Coordinator at 2006 S. Ankeny Blvd, Bldg. 1, Ankeny, IA 50023, phone 515/964-6216, [Title9@dmacc.edu](mailto:Title9@dmacc.edu). Questions or complaints about this policy may be directed to the Director of the Office for Civil Rights, U.S. Department of Education, Citigroup Center, 500 W. Madison, Suite 1475, Chicago, IL 60661-7204, phone 312/730-1560, fax 312/730-1576, email [OCR.Chicago@ed.gov](mailto:OCR.Chicago@ed.gov).

### **FURTHER PROCEDURE INFORMATION:**

Students who wish additional information or assistance may refer to Student Services procedure ES 4645 located at [https://www.dmacc.edu/student\\_services/int/Procedures/ES4645\\_Final.pdf](https://www.dmacc.edu/student_services/int/Procedures/ES4645_Final.pdf).

### **ADA/SECTION 504 INFORMATION:**

The Academic Support Services Director is the official Student Accommodation Officer/Section 504/ADA Coordinator for DMACC. The ADA Coordinator's office is located in Bldg. 6-10E on the Ankeny Campus and may be contacted by voice (515-964-6857). The ADA Coordinator is responsible for ensuring that the college complies with federal regulations that guarantee qualified students with disabilities equal access to all programs and services. Any student, faculty, or staff member may contact the ADA Coordinator's office for clarification of federal regulations, appeal of a grievance, or resolution of a disability-related problem.

## **ADDITIONAL INFORMATION**

DMACC wants to support student success through our Early Alert System. Early Alert connects students to available resources such as advising, counseling, tutoring and more. Faculty members may refer students to these supports in cases in which a student is showing difficulty in attendance, course work, and/or reported situations in which more support could aide in college success. Students are encouraged to respond to all DMACC

phone calls or emails and take full advantage of available resources to support a positive college experience. More information can be found at <https://earlyalert.dmacc.edu>.

To access additional information related to DMACC policies and procedures that impact the classroom (e.g. use of technology, weather-related cancellations, classroom conduct, etc.) please reference the DMACC student portal.

If you do not have access to a computer and need a printed version of any of the information described above, contact your instructor.

## **COURSE COMPETENCIES**

1. Examine the components of computer programming
  1. Describe the primitive data types in most computer languages
  2. Demonstrate initialization of variables with the assignment operator
  3. Determine appropriate test data to test a computer algorithm to verify anticipated output
  4. Use relational operators in the basic control structures
  5. Demonstrate the use of logical operators
2. Produce computer algorithms
  1. State the principle of the Structure Theorem
  2. Explain the three basic control structures
  3. Formulate an IPO chart in the development of algorithms
  4. Generate pseudocode to solve computer algorithms
  5. Construct flowcharts to communicate computer algorithms
3. Design computer algorithms that demonstrate appropriate use of the selection control structure
  1. Design an IF-THEN-ELSE selection control structure
  2. Understand the use of a CASE statement
4. Design computer algorithms that demonstrate appropriate use of the repetition control structure
  1. Solve an algorithm with a while loop
  2. Solve an algorithm with a for loop
  3. Solve an algorithm through the use of counters and accumulators
  4. Identify infinite loop conditions
5. Design computer algorithms that perform arithmetic operations
  1. List the order of precedence of arithmetic operators and logical operators
  2. Demonstrate the use of addition, subtraction, multiplication, and division operators in algorithms
6. Design computer algorithms to process arrays
  1. Demonstrate ability to define array structures
  2. Demonstrate the use of subscripts (indexes) are used to address array elements
  3. Perform a linear search of an array
  4. Create two dimensional arrays
7. Create functions/methods to organize programs into manageable code modules
  1. Define and call functions/methods
  2. Use techniques for passing values to and from functions/methods
8. Examine class organization and objects
  1. Differentiate between a class and an object
  2. Give examples of the relationships between classes and objects
9. Transform computer algorithms to a computer programming language using an editor and compiler to enter source code and generate object code
10. Explore the real-world programming environment

1. Describe the steps in the program development process such as Agile and waterfall methodologies
2. Discuss relevant development topics such as version control, test driven development, full-stack development, deployment, integration, relational databases, cloud computing

### COURSE SCHEDULE

Module	Topic	Due Date
NA	Official class start	May 21
1	Understand the Programming Process Pseudocode and flowcharts	May 24
2	Variables Constants Data types Sentinel values Arithmetic/logical operators	May 31
3	Three structures – using and combining Structure Theorem Why structure?	May 31
4	Decisions AND OR NOT Relational operators Ranges Case statements	June 7
5	Looping While loops For loops Counters and accumulators Infinite loops Loop mistakes, exit conditions	June 7



Module	Topic	Due Date
6	Arrays Search, find, min and max values Two dimensional arrays Define arrays	June 14
7	Methods Why methods? Creating methods Scope of variables	June 14
8	More Methods Return types Parameters	June 21
9	Object Oriented Programming Terminology Advantages of OOP Defining classes Creating objects	June 21
10	Access modifiers Inheritance Polymorphism Encapsulation	June 28
11	Basic Programming in Java Integrated Development Environment SDK or JRE or JDK Simple programs in Java	June 28
12	Loops in Programming	July 5
13	Methods	July 5

<b>Module</b>	<b>Topic</b>	<b>Due Date</b>
14	Real world programming environment and concepts	July 12
15	Final project using pseudocode/flowcharts and programming in Java	July 16
NA	Official class end	July 16