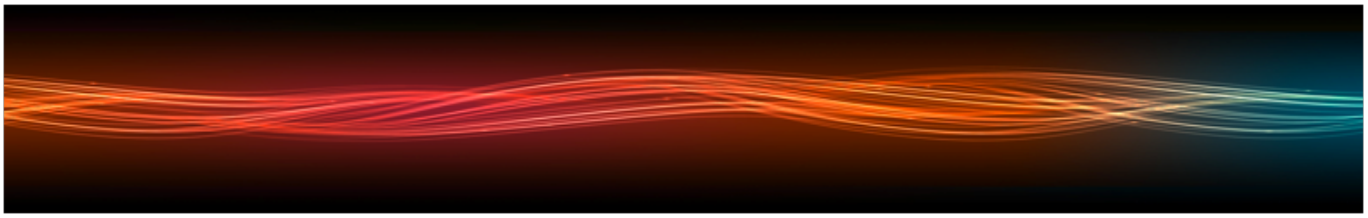

# ICS 141 – Discrete Mathematics for Computer Science I

Welcome to Discrete Mathematics for Computer Science I. In this course, you will be introduced to Logic, Proofs, Set Theory, Theory of Algorithms, Theory of Counting, Induction, and Probability. In this course you will learn to:

- Master precision in formal systems.
- Understand the concept of proofs as a chain of inferences.
- Apply formal rules of Algorithms to problem solving.
- Be able to develop a rigorous argument to support a concept.

This course completes the Foundation Symbolic Reasoning requirement. However, if your home campus is Windward Community College, it will not fulfill the Math requirement.

## Instructor Information

David Maxson
David.Maxson@hawaii.edu
Office Hours: Online

## Windward Community College Mission Statement

Windward Community College offers innovative programs in the arts and sciences and opportunities to gain knowledge and understanding of Hawai'i and its unique heritage. With a special commitment to support the access and educational needs of Native Hawaiians, we provide O'ahu's Ko'olau region and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.

## Catalog Description

This course covers logic, sets, functions, matrices, algorithmic concepts, mathematical reasoning, recursion, counting techniques, and probability theory.

## Student Learning Outcomes

- Analyze issues and apply mathematical problem solving skills to plan courses of action in decision-making situations, using basic mathematical formal logic, proofs, recursion, analysis of algorithms, sets, combinatorics, relations, functions, and probability.

## Student Learning Outcomes Alignment

| Student Learning Outcome | Lessons and Assessments |
|---|---|
| Mathematical Logic | Assignments 2 and 3 |
| Proofs | Assignments 4, 5, and 7 |
| Recursion | Assignments 6 and 8 |
| Analysis of Algorithms | Assignment 7 |
| Sets | Assignment 9 |
| Combinatorics | Assignments 12, 13, and 14 |
| Functions | Assignments 10 and 11 |
| Probablility | Assignments 12 and 14 |
| Relations | Assignments 10 and 11 |

## Course Content

| **Concepts** | **Skills** |
|---|---|
| 1. Basic mathematical formal logic.<br>2. Proofs.<br>3. Recursion.<br>4. Analysis of algorithms.<br>5. Sets.<br>6. Combinatorics.<br>7. Relations.<br>8. Functions.<br>9. Probability | Demonstrate mastery of techniques using:<br>1. Basic mathematical formal logic.<br>2. Proofs.<br>3. Recursion.<br>4. Analysis of algorithms.<br>5. Sets.<br>6. Combinatorics.<br>7. Relations.<br>8. Functions.<br>9. Probability |

## Class Times and Location

This is an online class. All lessons and interaction will be through Laulima.

# Assignment Tasks and Grading

Your final grade will be determined using a series of assignments. There will be a total of 14 assignments. Assignments are worth 20 points each. The maximum number of points possible is 280.

Assignments are due two weeks after they are assigned. You may turn in late work until May 4, 2016. No work will be accepted after that date. If you turn in an assignment after the due date there will be a 2 point penalty. If there are mistakes in your assignment you will have the chance to resubmit it for a higher grade.

Your letter grade is based upon the number of points you earn:

- A – 252 to 280 points.
- B – 224 to 251 points.
- C – 196 to 223 points.
- D – 140 to 195 points.
- F – 0 to 139 points.

# Learning Resources

Your textbook for this class is Epp's *Discrete Mathematics with Applications* (4th edition) from Cengage.

We will use Laulima for submitting and returning all assignments. All grades will be posted in Laulima and you will be able to track your progress by utilizing the grade book. In addition, there will be discussion boards in Laulima where you may post or answer questions. Use the private message tool in Laulima to contact the instructor.

# Other resources

- Tutoring may be available from the TRIO office in the Library on the WCC campus.
- All public computers at WCC have computers configured with all of the software needed for this class.

# Policies

**Disabilities Accommodation Statement**
If you have a physical, sensory, health, cognitive, or mental health disability that could limit your ability to fully participate in this class, you are encouraged to contact the Disability Specialist Counselor to discuss reasonable accommodations that will help you succeed in this class. Ann Lemke can be reached by phone at 235-7448, by email at lemke@hawaii.edu, or by stopping by her office in Hale 'Akoakoa 213 for more information.

**Academic Dishonesty - Cheating and Plagiarism**
You are responsible for the content and integrity of all work you submit. The guiding principle of academic integrity will be that all files, work, examinations, reports, and projects that you submit are your own work. See page 16 of the Windward Community College catalog for further clarification.

# A Final Thought

A computer is a computing machine. Everything it does involves numbers and mathematics, even when it doesn't seem to (such as writing a paper). Discrete Mathematics gives a basic understanding of the most common mathematical concepts used to create professional programs. You will need to study and, possibly, go through a section more than once to understand most of these concepts. But if you stick with it and apply these concepts to your programs you will be rewarded with applica0ons that operate efficiently and correctly. Good luck!