

**Please read what is stated below carefully and thoroughly! You really need to understand the challenging nature of this course and commit to what is stated below in order to avoid failing...**

- 1) This is a CHALLENGING 3.0-credit FOUNDATIONS COURSE!
- 2) **This course is NOT self-paced!**
- 3) **This class is VERY INTERACTIVE, so visiting – and at least perusing – the FORUMS very regularly is required!**
- 4) The Weekly Lesson Learning Materials function only as an introduction to the topics of study; the REAL WORK gets done on the FORUMS!
- 5) **The TEACHING is done via the FORUMS!**

Therefore...

- **There are Weekly Lessons and due dates to which you need to adhere.**
- Even though leeway on due dates for tests and some homework assignments can be granted, the instructor will give the answers to the exercises on (most of) the homework assignments so that you can study them for the tests. **As such, there is little to NO LEEWAY on the due dates for homework assignments that are due the same week that a test is given.**
- **You should spend, *at least*, FIVE HOURS a week on average on this class!** That equals the two-and-a-half hours you would be spending in the classroom if this class were face-to-face plus, *at least*, two-and-a-half hours of outside study.
- **You should visit the Laulima worksite and FORUMS for this class at least FOUR different DAYS a week for at least 45 minutes per visit!**
- Regarding forum work, you do not have to participate in each and every activity the instructor posts or respond to each and every question the instructor poses on the forums *and, indeed, should NOT reply to ANY activity or question that the class has moved on from.* **HOWEVER, you MUST PERUSE EVERYTHING the instructor posts on the forums very carefully and should participate in forum activities *when you are prepared to do so* (point being, you are not to just post “whatever” “whenever”).**

If you are willing to take the plunge, CONTINUE on to the Syllabus ...





UNIVERSITY of HAWAII®  
**WINDWARD**  
COMMUNITY COLLEGE

## **PHIL 111 Introduction to Inductive Logic**

3.0 Credits (CRN 63171)

Online Asynchronous

**INSTRUCTOR:** Steven Stegeman, Ph.D.  
**OFFICE:** N/A  
**OFFICE HOURS:** By appointment: virtual or by phone  
**TELEPHONE:** N/A                      **EMAIL:** stegeman@hawaii.edu  
**EFFECTIVE DATE:** Fall 2022

### **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 the Ko‘olau region of O‘ahu and beyond with liberal arts, career and lifelong learning in a supportive and challenging environment — inspiring students to excellence.*

### **CATALOG DESCRIPTION**

Introduction to the theory of arguments based on probabilities and to the theory of decision-making in the context of uncertainty. *This class fulfills Windward CC’s “FQ” general education requirement.*

### **STUDENT LEARNING OUTCOMES**

#### **Division-level Student Learning Objectives (SLO):**

- SLO 1:** Correctly classify data and variables.
- SLO 2:** Create and interpret various graphs and tables.
- SLO 3:** Calculate and interpret descriptive statistics, including the mean, median, and mode.
- SLO 4:** Construct and interpret point and interval estimates.

#### **Instructor-level Course Learning Objectives (CLO):**

- CLO 1:** Analyze the logic of claims and presentations.
- CLO 2:** Interpret or create various graphs, tables and/or diagrams.
- CLO 3:** Calculate complex equations.
- CLO 4:** Use various methods and formulae for statistical, probability and data analysis.

### **FOUNDATIONS HALLMARKS**

**To satisfy the Quantitative Reasoning “FQ” requirement, the course will:**

1. Provide students with theoretical justifications for, and limitations of, mathematical or statistical methods, and the formulas, tools, or approaches used in the course.
2. Include application of abstract or theoretical ideas and information to the solution of practical quantitative reasoning problems arising in pure and applied research in specific disciplines, professional settings, and/or daily and civic life.
3. Provide opportunities for practice and feedback that are designed to help students evaluate and improve quantitative reasoning skills by including a course component at least once per week with a maximum 30:1 student-to-teacher ratio.
4. Be designed so that students will be able to:
  - a. Identify and convert relevant quantitative information into various forms such as equations, graphs, diagrams, tables, and/or words;
  - b. Select appropriate techniques or formulas, and articulate and evaluate assumptions of the selected approaches;
  - c. Apply mathematical tools and perform calculations (including correct manipulation of formulas);
  - d. Make judgments, create logical arguments, and/or draw appropriate conclusions based on the quantitative analysis of data, the assumptions made, the limitations of the analysis, and/or the reasonableness of results; and
  - e. Effectively communicate those results in a variety of appropriate formats.

## COURSE TASKS

### Class Pacing:

**The class is “asynchronous”, NOT self-paced! Students are to keep up with class activities, like the posting on the forum regularly!**

The class schedule is to be fairly strictly followed. **The interactive-learning space for this class is the Lecture Hall forum. That is where I will, through replies, pose questions and facilitate activities, teach and provide guidance. It is absolutely imperative to visit both areas of the Lecture Hall forum frequently -- ideally a couple times every day** (though the visits do not have to be for long) -- **and read through every post on every thread** (whether or not you have participated on the thread).

### Course Calendar:

#### Week 1, 08/22 - 08/28

#### Prerequisites of Rationality & Logic

##### Topics:

- Objective Truth(s)/Reality
- Independent Thinking
- Problem of Groupthink

##### Tasks:

- Forum participation (per instructions) on the Q-and-A/Interactive-lecture thread on the prerequisites of rational and logical thinking.

**Week 2, 08/29 - 09/04****Deductive versus Inductive Logic**

Topics:

- Argumentational logicity: Deductive versus Inductive types
- Analogical/Comparative reasoning
- Abductive/Causal reasoning
- Statistical/Probabilistic reasoning

Tasks:

- Forum participation (per instructions) on the Interactive-lecture thread on deductive reasoning versus inductive reasoning.
  - Test #1 on content from Weeks 1 and 2 administered via the Tests & Quizzes tool in Laulima.
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**Week 3, 09/05 - 09/11****Introduction to Mill's and Mill's-type Methods**

Topics:

- Introduction to Mill's and Mill's-type methods

Tasks:

- Submit via the Assignments tool five tables for use with Mill's and Mill's-type methods according to specifications given on the thread on the Q&A Section of the forum.
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**Week 4, 09/12 - 09/18****Mill's and Mill's-type Methods: Agreement, Difference and Inversion**

Topics:

- Mill's and Mill's-type Methods of Agreement, Difference and Inversion
- Necessary versus Sufficient causes

Tasks:

- Submit via the Assignments tool the homework on Mill's and Mill's-type Methods of Agreement, Difference and Inversion.
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**Week 5, 09/19 - 09/25****Mill's Methods: Residues and Concomitant Variations**

Topics:

- Mill's Methods of Residues and Concomitant Variations

Tasks:

- Submit via the Assignments tool the homework on Mill's and Mill's-type Methods of Residues and Concomitant Variations.
  - Test #2 on content from Weeks 3 and 4 administered via the Tests & Quizzes tool in Laulima.
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**Week 6, 09/26 - 10/02****Statistical Averages & Standard Deviation**

Topics:

- Mean, Median, Mode
- Standard Deviation

Tasks:

- Forum participation (per instructions) on the Practice thread for mean, median, mode.
  - Forum participation (per instructions) on the various Practice threads on standard deviation.
  - Submit via the Assignments tool the homework on calculating standard deviation.
  - Test #3 on content from Weeks 5 and 6 administered via the Tests & Quizzes tool in Laulima.
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### **Week 7, 10/03 – 10/09**

#### **Probability Trees**

Topics:

- Probability-tree Diagrams

Tasks:

- Submit via the Assignments tool the homework on calculating probabilities using probability trees.
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### **Week 8, 10/10 - 10/16**

#### **Combinations & Permutations**

Topics:

- Combinations
- Permutations

Tasks:

- Forum participation (per instructions) on the Practice thread for combinations and permutations.
  - Submit via the Assignments tool the homework on calculating combinations and permutations.
  - Test #4 on content from Weeks 7 and 8 administered via the Tests & Quizzes tool in Laulima.
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### **Week 9, 10/17 - 10/23**

#### **Introduction to Formal Probability Calculus**

Topics:

- Introduction to the six Basic Rules of Probability Calculus

Tasks:

- Submit via the Assignments tool the homework on reproducing the six formulae for the basic rules of probability calculus.
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### **Week 10, 10/24 - 10/30**

#### **Basic (Restricted) Rules of Probability Calculus**

Topics:

- Formula for Rule of Basic Conjunction
- Formula for Rule of Basic Disjunction

- Formula for Rule of Conditional Probability

Tasks:

- Forum participation (per instructions) on the various Practice threads regarding the rules of probability calculus in accordance with the given instructions.
  - Submit via the Assignments tool the homework on the formulae for conditional probability and the basic conjunctive and disjunctive rules of probability used in formal probability calculus.
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### **Week 11, 10/31 - 11/06**

#### **Advanced (General) Rules of Probability Calculus**

Topics:

- Formula for Rule of Advanced Conjunction
- Formula for Rule of Advanced Disjunction
- Formula for Rule of Negation

Tasks:

- Forum participation (per instructions) on the various Practice threads regarding the rules of probability calculus in accordance with the given instructions.
  - Submit via the Assignments tool the homework on calculating probabilities using the formulae for all the basic rules of probability calculus.
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### **Week 12, 11/07 - 11/13**

#### **Odds**

Topics:

- Betting Odds

Tasks:

- Forum participation (per instructions) on the Practice thread on calculating odds.
  - Test #5 on content from Weeks 9, 10, 11 and 12 administered via the Tests & Quizzes tool in Laulima.
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### **Week 13, 11/14 - 11/20**

#### **Introduction to Bayes's Theorem**

Topics:

- Introduction to Bayes's Theorem

Tasks:

- Submit via the Assignments tool the homework on reproducing the formula for Bayes's Theorem.
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### **Week 14, 11/21 - 11/27**

#### **Bayes's Theorem Short Form**

Topics:

- Bayes's Theorem short form, that is, when the denominator is given

Tasks:

- Forum participation (per instructions) on the various Practice threads on calculating Bayes's Theorem short form in accordance with the given instructions.
  - Submit via the Assignments tool the homework on calculating complex conditional probabilities using Bayes's Theorem short form.
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### **Week 15, 11/28 - 12/04**

#### **Bayes's Theorem Long Form**

Topics:

- Bayes's Theorem long form, that is, when the denominator is given

Tasks:

- Forum participation (per instructions) on the various Practice threads on calculating Bayes's Theorem long form in accordance with the given instructions.
  - Submit via the Assignments tool the homework on calculating complex conditional probabilities using Bayes's Theorem long form.
  - Test #6 on content from Weeks 13, 14 and 15 administered via the Tests & Quizzes tool in Laulima.
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### **Week 16, 12/05 - 12/11**

#### **Logical Fallacies**

Topics:

- Formal and Informal Logical Fallacies

Tasks:

- Forum participation (per instructions) on the various Practice threads on logical fallacies in accordance with the given instructions.
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### **Week 17 (Finals Week), 12/12 - 12/16**

#### **Logical Fallacies (continued)**

Tasks:

- Forum participation (per instructions) on the various Practice threads on logical fallacies in accordance with the given instructions (continued posting allowed but not required).
  - Test #7 on content from Week(s) 16 (and 17) administered via the Tests & Quizzes tool in Laulima.
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## **LEARNING RESOURCES**

### **Required Texts:**

All the learning materials for this class, *except one*, are provided at no cost. Links to these materials are embedded within the weekly lessons. The one text students are responsible for procuring on their own is the following Kindle ebook (however, it is not needed until Week 16):

Lovell, Scott. [\*Logical Fallacies: Do You Make These Mistakes in Reasoning?\*](#), Scotts Valley, California: CreateSpace, 2018 (ISBN-10: 1725058588). (It is available in other formats, including audiobook.)

## ASSESSMENT TASKS AND GRADING

**Grade Scale:** 90 or higher = A; 80-89 = B; 70-79 = C; 60-69 = D. Below 60 is a failing grade.

**Grading Policy:** 100% = 50% Tests + 35% Homework Assignments + 15% Forum Posts

For example... Let's say for the class all the Tests totaled 300 points; all the Homework Assignments totaled 200 points, and 30 total substantive Forum Posts were required. Now, let's say a student received a total of 225 points on the Tests, 160 points on the Homework Assignments, and did 27 qualifying Forum Posts. This student's grade would be calculated as follows:

$$(225/300 \times .50) + (160/200 \times .35) + (27/30 \times .15) \leftarrow \text{(In the case of the Posts, it is easier just to think of them as a half grade/percentage point each, in which case } 27 = 13.5\%.)$$

Or, simply

$$(225/300 \times .50) + (160/200 \times .35) + 13.5\%$$

$$(.75 \times .50) + (.80 \times .35) + 13.5\%$$

$$.375 + .28 + 13.5\%$$

$$37.5\% + 28\% + 13.5\% = 79\%$$

**This student's final grade would be a C.**

Incompletes must be discussed prior to the start of the final week of class!

All **Graded Assignments** are listed and detailed in the outlines of the Modules on the Weekly Lessons pages in our class worksite in Lulima.

Tests and Homework Assignments are just worth a set number of points that may vary from one semester or session to another. The total points for Tests and Homework Assignments for a semester/session could respectively range from 150 to 350 points.

Regarding Forum Posts, of which you are required to do 30, specific criteria will be presented in each respective forum activity, and that is what you should specifically follow, but here are some general guidelines about the two forums, the Structured Activities Area and the Module Q&A Section:

- The most straightforward and probably easiest way to get credit for a forum post is to reply correctly in accordance with the instructions given for a particular thread or within a particular thread in the Structured Activities Area of the Lecture Hall forum. Much of the time all that is going to require is just posting the correct answer, and some of the time that answer is going to be very short.
- It is also possible to get credit for forum posts on the module question-and-answer (Q&A) threads listed and linked to in the Interactive Study section of the module outlines and posted in the Module Q&A Section of the Lecture Hall forum. Credit for forum posts in that section must be in accordance with the instructions given on the respective thread. Those general instructions are repeated in the initial post of each thread, though there will also be opportunities to get credit for forum posts by correctly answering specific questions I pose.



## COURSE CONTENT & COMMUNICATION

### Course Content:

Rationality and Logic's preconditions, Inductive reasoning, Mill's and Mill's-type Methods, Statistical Averages, Standard Deviation, Probability Trees, Permutations, Combinations, Odds, Probability Calculus, Bayes's Theorem, Logical Fallacies

### Course Communication:

1. Instructor will post in the Announcements section of the class worksite in Laulima a message marking the commencement of each week's lessons.
2. Instructor will send out occasional "Class Reminders" via the Message Center Monday through Friday.

**Prerequisites:** None

## DISABILITIES ACCOMMODATIONS

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 Accessibility Counselor to discuss reasonable accommodations that will help you succeed in this class. Roy Inouye can be reached at (808) 235-7448, [royinouy@hawaii.edu](mailto:royinouy@hawaii.edu), or you may stop by Hale Kāko'o 106 for more information.

## SEX DISCRIMINATION AND GENDER-BASED VIOLENCE RESOURCES (TITLE IX)

Windward Community College is committed to providing a learning, working, and living environment that promotes personal integrity, civility, and mutual respect and is free of all forms of sex discrimination and gender-based violence, including sexual assault, sexual harassment, gender-based harassment, domestic violence, dating violence, and stalking.

If you or someone you know is experiencing any of these, WCC has staff and resources to support and assist you. To report an incident of sex discrimination or gender-based violence, as well as receive information and support, please contact one of the following:

Kaahu Alo, Student Life Counselor & Designated Confidential\* Advocate for Students  
 Phone: (808) 235-7354  
 Email: [kaahualo@hawaii.edu](mailto:kaahualo@hawaii.edu)  
 Office: Hale 'Ākoakoa 232  
*\*confidentiality is limited*

Desrae Kahale, Mental Health Counselor & Confidential Resource  
 Phone: (808) 235-7393  
 Email: [dkahale3@hawaii.edu](mailto:dkahale3@hawaii.edu)  
 Office: Hale Kāko'o 101

Karla K. Silva-Park, Title IX Coordinator  
 Phone: (808) 235-7468  
 Email: [karlas@hawaii.edu](mailto:karlas@hawaii.edu)  
 Office: Hale 'Ākoakoa 220

As a member of the University faculty, I am required to immediately report any incident of sex discrimination or gender-based violence to the campus Title IX Coordinator. Although the Title

IX Coordinator and I cannot guarantee confidentiality, you will still have options about how your case will be handled. My goal is to make sure you are aware of the range of options available to you and have access to the resources and support you need.

For more information regarding sex discrimination and gender-based violence, the University's Title IX resources and the University's Policy, Interim EP 1.204, go to [manoa.hawaii.edu/titleix/](http://manoa.hawaii.edu/titleix/).

### **ACADEMIC INTEGRITY**

Work submitted by a student must be the student's own work. The work of others should be explicitly marked, such as through use of quotes or summarizing with reference to the original author.

In this class, students who commit academic dishonesty, cheating or plagiarism will have the following consequence(s):

- Students will receive a failing grade for plagiarized assignments.
- All cases of academic dishonesty are referred to the Vice Chancellor for Student Affairs.

### **ALTERNATE CONTACT INFORMATION**

If you are unable to contact the instructor, have questions that your instructor cannot answer, or for any other issues, please contact the Academic Affairs Office:

- Location: Alaka'i 121
- Phone: (808) 235-7422