

DEDUCTIVE LOGIC I (60.01)
IN-PERSON (SYNCHRONOUS)
SPRING 2024 SEMESTER

1. COURSE INFORMATION

A. Instructor: Kevin Vandergriff

B. E-mail Address: vandergriff@csus.edu

C. Course Modality: Deductive Logic I (PHIL 60) employs a synchronous/hybrid instructional course modality managed through the online [Canvas Learning Management System](#).

I. Synchronous means there are scheduled face-to-face class meetings (i.e., this course is being presented in “real” time and there is a component of the course requiring students to meet or be present at specific locations on campus, at specific times, and on specific days). Your Student Center shows the location, times, and days we are responsible for meeting face-to-face.

II. In our course, we adopt a **hybrid instructional model** that blends flipped classroom elements with traditional classroom activities. Course content, including lectures and readings, will be provided online for students to review before class. Each class session will begin with a recap of the previous lecture, followed by an overview of the current week's lecture. Students can submit questions using digital tools, which will be addressed in class. Sessions will also include group discussions, in-class quizzes, and problem-solving practice. Additionally, weekly tips for success will be provided. This approach aims to create an interactive and dynamic learning environment, emphasizing active participation and understanding. Regular attendance and participation are crucial to gain the full benefits of this hybrid teaching method.

III. The **Canvas Learning Management System** is used to manage all assignments in this course. As such, I ask that we all please adhere to the core rules of netiquette and all of us should conduct ourselves in ways consistent with the [Hornet Honor Code](#).

D. Office Hours: Although this course is synchronous, I am conducting office hours via Zoom (Monday and Wednesday, from 4:00 pm – 4:45 pm) using a waiting room structure: <https://csus.zoom.us/j/7675376536> or meeting ID 767 537 6536). I am also conducting office hours, in person, on Tuesdays, from 5:50 pm – 6:35 pm.

E. Availability: Every effort is made to communicate with you quickly, effectively, and accurately. I take this as an important element of my responsibility to you. However, after 5 pm M-F or on the weekends, my response may be delayed. If the concern regards a time sensitive matter, please frequently check for a response from me with a solution, as often the best solution is one that can be implemented quickly.

In the event a faculty member is not available during the semester for whatever reason, students will be contacted and advised how the course will proceed. This may include a change in instructor and/or modality).

2. CATALOGUE DESCRIPTION

PHIL 60. Deductive Logic I.

3 Units

General Education Area/Graduation Requirement: Math Concepts & Quantitative Reasoning (Area B4)

Introduction to deductive logic. Topics include basic concepts of deductive logic; techniques of formal proof in propositional and predicate logic.

3. GENERAL EDUCATION LEARNING OBJECTIVES

The learning objectives associated with B4 involve mathematical concepts and quantitative reasoning. Specifically, students completing B4 requirements should be able to:

- A. Solve problems by thinking logically, making conjectures, and constructing valid mathematical arguments.
- B. Make valid inferences from numerical, graphical, and symbolic information.
- C. Apply mathematical reasoning to both abstract and applied problems, and to both scientific and non-scientific problems.

4. PHILOSOPHY LEARNING OBJECTIVES

This course has eleven overall student learning objectives:

- A. Explain key concepts such as logical necessity, consistency, contradiction, tautology, validity, and soundness;
- B. Employ the logical connectives in formalizing arguments and write out the truth-tables for all of them;
- C. Employ formation rules to determine whether a propositional logic formula is properly formed;
- D. Use truth-tables to test for contradiction, necessity and validity;
- E. Use refutation trees to test for contradiction, necessity and validity;
- F. Formalize statements in natural language using the propositional calculus;
- G. Perform deductive proofs using the rules of the propositional calculus;
- H. Formalize statements in natural language using the predicate calculus;
- I. Employ formation rules to determine whether a propositional logic formula is properly formed;
- J. Evaluate predicate logic propositions relative to a model;
- K. Perform deductive proofs using the rules of the predicate calculus.

5. REQUIRED MATERIALS

A. Required Course Text

I. [Schaum's Easy Outline of Logic](#), Crash Course. by Nolt, Rohatyn, and Varzi.
(Print ISBN: 9780071777537)

B. Required Technology

I. *Canvas/Internet*: This course uses Canvas to post grades for each of your assignments and to administer them. It is your responsibility to ensure you have regular and reliable [operating systems and browsers](#) (e.g., Internet Explorer, Firefox, Chrome, and Safari support the use of Canvas) that

are compatible with Canvas. Watch the [Canvas Quick-Start Guide](#) to teach yourself how to navigate these assignments.

II. Zoom: This course only uses [Zoom](#) for office hours. If necessary, you can request technical assistance with Canvas, WiFi devices/access, and Zoom from [Information Resources and Technology: Support and Consultation](#)).

C. Required Software

Adobe/PowerPoint/Word: Some of the course materials, such as assigned readings and lecture slides, required having Adobe, PowerPoint, and Word software. This software (and more) can be freely downloaded by any California State University, Sacramento student—from the [Software and Tools Catalog](#).

6. GRADED ASSIGNMENTS

Your score on the following assignments will constitute your final grade in this course: one introductory group discussion, twelve exams, and one extra credit opportunity.

A. Introductory Group Discussion (1 discussion x 4 points= 4 points)

During the first week of the semester, you will complete an introductory group discussion assignment. For this assignment, you will be asked to provide some appropriate personal information about yourself for others in the class to see, solve two deductive logic problems, and then you will be asked to welcome someone else to the class.

B. Exams (12 exams x 8 points each = 96 points)

Six of these exams will be multiple-choice and must be completed via Canvas. The other six exams will require you to solve proof questions. Your lowest or one of your lowest exam scores will be dropped from your final grade calculation. Further instructions and relevant information can be found in the weekly schedule at the end of this syllabus and the Modules tool in Canvas.

C. Extra Credit: Course Evaluation (0 - 1 point)

This works as follows: The percentage of students in the class who complete the course evaluation will be multiplied by 1. The product will be added to every student point total. For example, if 90% of students do the course evaluation, then 0.9 points will be added to every student's final grade.

D. Final Grade

The final grade is based upon a 100-point scale (where 1 point = 1%):

Scaled Score	Letter Grade	Scaled Score	Letter Grade	Scaled Score	Letter Grade
100 - 94 pts	A	83.99 - 80 pts	B-	69.99 - 67 pts	D+
93.99 - 90 pts	A-	79.99 - 77 pts	C+	66.99 - 64 pts	D
89.99 - 87 pts	B+	76.99 - 74 pts	C	63.99 - 61 pts	D-

86.99 - 84 pts	B	73.99 - 70 pts	C-	60.99 - 0 pts	F
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7. MAKEUP/LATE ASSIGNMENT POLICY

Only students with verifiable exceptional circumstances (including COVID-19 related circumstances) such as a serious illness, death in the family, university approved events, government required activities, an employment related conflict beyond the student's control, or other serious or compelling reasons can makeup assignments. Otherwise, there are no opportunities to makeup assignments.

Late assignments will receive a zero because you have about one week to complete them. Any assignments that are completed on time, but not turned in through the appropriate Canvas channel will be considered late, and so, they will receive a zero.

8. PLAGIARISM/CHEATING/DROP AND WITHDRAWAL POLICY

Plagiarism and cheating are serious academic offenses that will not be tolerated in this class. Assignments in which plagiarism or other forms of cheating are found will at the least be graded at 0 (not just an F). Repeated or egregious (>20% of course grade value) violations of the university policy will result in an F in the course. ALL incidents of cheating and plagiarism will be reported both to the Department Chair and to the Student Conduct Officer in the Office of Student Affairs for possible further administrative sanction. It is your responsibility to know and comply with the [University's Academic Honesty Policy](#) and the [Drop and Withdrawal Policy](#).

9. CAMPUS RESOURCES

A. [Basic Needs Resources](#): If you are experiencing challenges in the area of food and/or stable housing, help is just a click, email or phone call away! Sacramento State offers basic needs support to students who are experiencing challenges in these areas.

B. [Student Health & Counseling Services \(SHCS\)](#): Your physical and mental health are important to your success as a college student. Student Health and Counseling Services (SHCS) in The WELL offers medical, counseling, and wellness services to help you get and stay healthy during your time at Sac State. SHCS offers: Primary Care medical services, including sexual and reproductive healthcare, transgender care, and immunizations; urgent care for acute illness, injuries, and urgent counseling needs; pharmacy for prescriptions and over-the-counter products; mental health counseling, including individual sessions, group counseling, support groups, mindfulness training, and peer counseling; athletic training for sports injury rehabilitation; wellness services, including nutrition counseling, peer led health education and wellness workshops, and free safer sex supplies; violence and sexual assault support services. Most services are covered by the Health Services fee and available at no additional cost.

C. [Crisis Assistance & Resource Education Support \(CARES\)](#): If you are experiencing challenges with food, housing, financial or other unique circumstances that are impacting your education, help is just a phone call or email away. The CARES office provides case management support for any enrolled student.

D. [Services to Students with Disability \(SSWD\)](#): Sacramento State is committed to ensuring an accessible learning environment where course or instructional content are usable by all students and faculty. If you believe that you require disability-related academic adjustments for this class, please immediately contact Services for Students with Disabilities (SSWD) to discuss eligibility. A current accommodation letter from SSWD is required before any modifications, above and beyond what is otherwise available for all other students in this class will be provided.

If you have a documented disability (visible or invisible) and require accommodation for assignments, tests, course material, etc., please let me know by **the end of the SECOND week of the semester** so that arrangements can be made. Failure to notify and consult with me by this date may impede my ability to offer you the necessary accommodation and assistance in a timely fashion.

Students with other types of accommodation requirements, such as English as a second language (ESL), are invited to discuss accommodations with the instructor to facilitate understanding and the best learning experience for all. All information will remain confidential. ESL students are advised to make use of the [Reading and Writing Center](#) in Calaveras Hall, 128.

E. Covid-19 Instructions and Support: In general, see the university's website [Return To Campus & COVID-19 Information](#), and if you are planning to come to campus, check the Sac State Mobile App for the latest COVID-19 protocols. If you are sick, stay home and do not attend class. Notify your instructor. If you are experiencing any COVID- like symptoms (fever, cough, sore throat, muscle aches, loss of smell or taste, nausea, diarrhea, or headache) or have had exposure to someone who has tested positive for COVID contact Student Health & Counseling Services (SHCS) at 916-278-6461 to receive guidance and/or medical care. You are asked to report any possible COVID related illnesses/exposures to SHCS via the [COVID-19 Intake Form](#). Expect a call from SHCS within 24 hours.

F. Five More Campus Resources:

- I. [Academic Advising](#)
- II. [Information Resources and Technology](#)
- III. [Support Centers and Programs](#)
- IV. [Reading & Writing Center](#)
- V. [Student Rights and Responsibilities](#)

10. TITLE IX

The University requires faculty and staff to report any personal disclosures of sexual misconduct including rape, dating/domestic violence and stalking to the Title IX Coordinator. Students who do not wish to report their experience to me or the Title IX Coordinator may speak to someone confidentially by contacting Student Health and Counseling Services.

11. WEEKLY SCHEDULE

Module Dates	Canvas Module (Lecture Topic)	Recommended Readings/Videos	Graded Assignments (Due Dates)
1/22 to 2/1	Introduction to Formal Logic & The Language of Propositional Logic	Nolt, Rohatyn, and Varzi, Schaum's Easy Outline of Logic (pp. 1-28)	Intro. Group Discussion (2/1) Online Exam (2/1)
2/1 to 2/8	The Semantics of Propositional Logic	Nolt, Rohatyn, and Varzi, Schaum's Easy Outline of Logic (pp. 28-35)	Online Exam (2/8)
2/8 to 2/15	Refutation Trees (Part I)	Nolt, Rohatyn, and Varzi, Schaum's Easy Outline of Logic (pp. 35-39)	No Exam
2/15 to 2/22	Refutation Trees (Part II)	Nolt, Rohatyn, and Varzi, Schaum's Easy Outline of Logic (pp. 39-41)	In Class Exam (2/22)
2/22 to 2/29	Propositional Calculus: Non-Hypothetical Rules	Nolt, Rohatyn, and Varzi, Schaum's Easy Outline of Logic (pp. 42-46)	In Class Exam (2/29)
2/29 to 3/7	Conditional Proof: Hypothetical Rules	Nolt, Rohatyn, and Varzi, Schaum's Easy Outline of Logic (pp. 46-50)	In Class Exam (3/7)
3/7 to 3/14	Indirect Proof: Hypothetical Rule (Negation Introduction)	Nolt, Rohatyn, and Varzi, Schaum's Easy Outline of Logic (pp. 49-50)	In Class Exam (3/14)
3/21 to 3/28	Derived Rules and Equivalences (Part I)	Nolt, Rohatyn, and Varzi, Schaum's Easy Outline of Logic (pp. 50-53)	Online Exam (3/28)
3/28 to 4/4	Derived Rules and Equivalences (Part II)	Nolt, Rohatyn, and Varzi, Schaum's Easy Outline of Logic (pp. 50-53)	In Class Exam (4/4)
4/4 to 4/11	Predicate Logic: Predicates, Names, Quantifiers and Variables	Nolt, Rohatyn, and Varzi, Schaum's Easy Outline of Logic (pp. 72-78)	Online Exam (4/11)
4/11 to 4/25	Predicate Logic: Formation Rules, Models, Identity	Nolt, Rohatyn, and Varzi, Schaum's Easy Outline of Logic (pp. 78-81, 81-86, 94-96)	Online Exam (4/25)

Module Dates	Canvas Module (Lecture Topic)	Recommended Readings/Videos	Graded Assignments (Due Dates)
4/25 to 5/2	Predicate Calculus: Inference Rules for Universal Quantifier and Existential Quantifier	Nolt, Rohatyn, and Varzi, <i>Schaum's Easy Outline of Logic</i> (pp. 97-106)	In Class Exam (5/2)
5/2 to 5/17	Predicate Calculus: Quantifier Exchange and Inference Rules for Identity	Nolt, Rohatyn, and Varzi, <i>Schaum's Easy Outline of Logic</i> (pp. 106-110)	Online Exam (5/13 - 5/17)