Philosophy 1210, *Elementary Symbolic Logic*, Fall 2022

3 credits

Monday/Wednesday/Friday, 9:00–9:50am (section 02), 10:00—10:50am (section 03)

Newcomb Hall 15

Canvas Website: <https://tulane.instructure.com/courses/2254017>

## Instructor: Josh Mund (he)

## Office: Newcomb Hall 105E

## Office hours: Thursdays 1:00–3:00pm; please also feel free to set up a different time to meet with me.

## Email address: jmund@tulane.edu

## Course description

This course has two main goals. The first is that students be able to distinguish between valid and invalid arguments—that is, between arguments whose premises guarantee that the conclusion is true and arguments that do not have this feature. For example students will be able to recognize that argument (1) is valid but that argument (2) is invalid:

1. Premise: All animal species that evolved to have a heart also evolved to have kidneys

Premise: The domestic cat is an animal species that evolved to have a heart

Conclusion: The domestic cat evolved to have kidneys

1. Premise: All countries that are members of NATO are located in the northern hemisphere

Premise: Switzerland is located in the northern hemisphere

Conclusion: Switzerland is a member of NATO

The second goal, which is closely related to the first, is that students develop a better understanding of the precise meaning of statements in natural languages (such as English). For example, students will learn that the follow two statements have the same meaning: (1) “No drinks containing Mountain Dew are caffeine free”; (2) “Nothing that is caffeine free is a drink containing Mountain Dew”.

As a means to achieving both of these goals, students will learn to symbolize sentences and arguments of a natural language (English) using a formal, artificial language (propositional and predicate logic).

## Course Learning Objectives

At the end of this course you will be able to:

* Explain what an argument is, what it means for an argument to be valid or sound, and the difference between deductive and inductive arguments; and identify instances of these types of arguments.
* Translate between English and propositional logic and predicate logic.
* Use truth tables to determine the truth-functional validity of arguments in propositional logic.
* Use natural deduction to prove the truth-functional and quantificational validity of arguments in propositional and predicate logic.

## Program-Level Outcomes

This course satisfies the logic requirement for the standard philosophy major as well as for the concentration in language, mind, and knowledge and the concentration in law, morality, and society.

## Core Curriculum Outcomes

This course satisfies the formal reasoning proficiency requirement of the Newcomb-Tulane College Core Curriculum.

**Classroom Rules**

*Electronics*

It is very easy be distracted by your phone and other electronics in class, and I encourage you to make a commitment to yourself not to use electronics in this class for anything besides taking notes. Focusing on the material without distraction will help you get a great deal out of the class. And, I’m excited to hear what each of you thinks about the material that we’ll be studying, so I hope that you’ll be fully engaged with me and with your classmates, rather than splitting your attention between outside influences and the rest of us. However, recognizing that you are all adults who should be allowed to make your own decisions, at this point I don’t plan to prohibit electronics in class. However, please make sure your phone and other electronics are silenced and not disturbing classmates in any other way. If someone else’s behavior—their use of electronics or something else—is interfering with your learning, please politely bring it up with them, and then speak to me if that does not resolve the issue.

*Respectful Discussion*

The subject matter of this class is less well-suited for discussion than the material in other philosophy classes. Nevertheless, there will be some opportunity to discuss the material in class. When we do so, it’s very important to interact with your classmates (and me) respectfully. Some specific ways to do this are the following: listen carefully when other people are talking, never interrupt or speak out of turn, and refrain from using sarcasm or humor that comes at someone else’s expense, or at the expense of their position. (Note that it is possible to challenge someone else’s view and to explain why you think they are mistaken without showing disrespect in any of the ways just mentioned.)

*Food and Drinks*

Drinking coffee, water, etc. in class is completely fine. It is also ok to bring something to eat in class, if it will not disturb others, but please take advantage of the food policy only when you have a good reason to (for example, you have 3 classes in a row on Monday and having a quick snack will help you focus).

**Required Student Resources**

* The textbook for the course is *Logic*, by Stan Baronett, 5th edition.
* Students who choose to use the NTC Undergrad Bundle can access the textbook via Canvas: <https://tulane.instructure.com/courses/2254017> (click on “Course Materials” in the menu on the left). If you opted for the NTC Undergrad Bundle but are having trouble accessing the textbook via Canvas, first make sure that you responded to any email from Tulane about textbooks, and then contact either the bookstore (<https://tulane.bncollege.com/customer-service> ) or IT support (<https://it.tulane.edu/customer-support> ). If you continue to have trouble, please let me know.
* If you decided not to use the NTC Undergrad Bundle, the are many ways to buy the textbook, e.g., <https://global.oup.com/ushe/product/logic-9780197602362?cc=us&lang=en> and <https://www.vitalsource.com/> .
  + Please note that there are several previous editions of this book. There may be a good deal of similarity between these editions, but it’s safest to buy the 5th edition.
  + There are several versions of the 5th edition (e.g., the “Concise Edition”); some of them omit certain chapters. Be sure that the version you purchase includes chapters 1 and 7–9.

**Assignments and Grading:**

Assignments:

* Attendance (10% of final grade)
  + Everyone starts the semester with 10 points for attendance.
  + Each unexcused absence after the 1st reduces your attendance grade by 2 points; e.g., if you have 0 or 1 unexcused absence, you’ll receive 10/10 attendance points; if you have 2 unexcused absences, you’ll receive 8/10 attendance points; if you have 3 unexcused absences, you’ll receive 6/10 attendance points.
  + Excused absences include medical issues and important non-academic conflicts, e.g., weddings, funerals, family illness.
* 6 homework assignments and occasional in-class quizzes (announced in advance) (30% of final grade)
  + Late submission: In general, your grade on a particular homework assignment will be reduced by 5% for each day that you submit the assignment after the deadline. For example, if you submit the assignment two days after the deadline, your grade on that assignment will be reduced by 10%. I’m generally happy to give extensions for illness and for other important commitments (e.g., weddings, other important family events). I will also generally give a short extension if you find yourself swamped with other work. However, for the sake of your own learning, it is important not to fall behind; please make a concerted effort to stay on schedule with the material. When at all possible, be sure to check with me about any extensions ahead of time.
* Two preliminary exams (12.5% of final grade each)
* Cumulative final exam (35% of final grade)
* Extra credit: Studying with your small group:
  + I encourage you to study regularly with other students in your small group. Hearing the material presented by someone else, and—even better—trying to explain the material to someone else are excellent ways to improve your own understanding and to retain what you’ve learned. A 1% increase in the final grade will be given to everyone who meets to study the material in this class with members of their small group 4 times during the semester, for at least 1 hour each meeting (though I encourage you to review the material much more often—weekly meetings are a great idea). Please note that homework assignments should be done individually, not with your small group; but, doing problems similar to those on the homework is fine to do with your small group.

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| If your overall percentage is at least a(n)… | 93 | 90 | 87 | 83 | 80 | 77 | 73 | 70 | 67 | 63 | 60 |
| Your grade will be at least a(n)… | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | D- |

**Attendance**

* As described above, attendance constitutes 10% of your grade.
* I strongly encouraged you to attend every class. If you have to miss class, please get in touch with someone in your small group to discuss what you missed. I’m happy to answer questions as well.
* Attending class via Zoom is permitted for special circumstances such as illness, or important non-academic commitments that prevent you from attending in person. Please let me know 24 hours in advance—if possible—that you would like to attend class via Zoom; I don’t plan to open up the zoom room unless someone has contacted me about attending that way. If you attend via Zoom, please type “here” or “present” into the chat so that I know you attended class. I expect that you be engaged with the material and ready to participate when attending via Zoom.
* If you need to miss class for an important reason and can’t attend via zoom, I may be able to record the lecture for you. Be in touch with me if this situation arises.

## Recordings of class sessions

To be determined with class input.

## ADA/Accessibility Statement

Tulane University is committed to offering classes that are accessible. If you anticipate or encounter disability-related barriers in a course, please contact the Goldman Center for Student Accessibility to establish reasonable accommodations. If approved by Goldman, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. I will never ask for medical documentation from you to support potential accommodation needs. **Goldman Center contact information:** Email: [goldman@tulane.edu](mailto:goldman@tulane.edu); Phone (504) 862-8433; Website: [accessibility.tulane.edu](https://accessibility.tulane.edu/)

## Code of Academic Conduct

The Code of Academic Conduct applies to all undergraduate students, full-time and part-time, in Tulane University. Tulane University expects and requires behavior compatible with its high standards of scholarship. By accepting admission to the university, a student accepts its regulations (i.e., [Code of Academic Conduct](https://college.tulane.edu/academics/academic-integrity/code-of-academic-conduct) and [Code of Student Conduct](https://conduct.tulane.edu/resources/code-student-conduct)) and acknowledges the right of the university to take disciplinary action, including suspension or expulsion, for conduct judged unsatisfactory or disruptive.

**Specific Academic Conduct Issues Regarding Phil 1210:**

I encourage you to study with your small groups; this might include reviewing notes, testing each other on the rules, definitions, and concepts; you can also work on practice problems from the textbook with your group members. Working together is helpful not only because you will be able to fill in the gaps in each other’s learning, but also because trying to explain a concept to someone else is a great way to solidify what you have learned and to discover missing pieces in your understanding.

However, you should not work on any part of the homework assignments with members of your group (or with anyone else). I make this rule in part because of fairness (it’s not fair for one person to do well on the homework simply because one of their group members understands the material), and in part because homework assignments can be a good indicator that you aren’t understanding a particular concept and that you need to review it or get extra help from me.

The only materials you are allowed to consult in completing your homework assignments are the course textbook, materials distributed in class, the materials posted on this semester’s course website, your notes, and any materials that you have created using these sources. Do not consult other materials without prior permission. Consulting unauthorized materials is a form of academic misconduct. If there is a particular source that you would like to use that is not listed above, feel free to ask me about it. I impose this restriction in part to avoid allowing an unfair advantage, but also because some sources available online will mislead you, either because they contain errors or because they are using different rules/definitions than the ones we are using.

You are responsible for understanding and abiding by these policies. Ignorance of the rules or lack of an intention to break them does not fully absolve you of responsibility. If you have any questions about what constitutes academic misconduct in our course, refer to the webpages above or ask, either in private or in class.

## Equity, Diversity, and Inclusion Statement (EDI)

Equity, diversity, and inclusion (EDI) are important [Tulane values](https://tulane.edu/core-values#:~:text=An%20inclusive%20community%20supports%20an,to%20build%20a%20better%20tomorrow.) that are key drivers of academic excellence in our learning environments. In our drive for academic excellence, we seek to ensure that students, faculty, and staff across diverse social identities, cultural backgrounds, and lived experiences can thrive - especially those from underrepresented and underserved communities (e.g., race/ethnicity, gender identity and expression, sexual orientation, disability, social class, international, veterans, religious minorities, age, and any other classification protected by applicable law - see [Tulane's Nondiscrimination Policy](https://hr.tulane.edu/institutional-equity#:~:text=Tulane%20does%20not%20discriminate%20on,law)%20in%20any%20of%20its)). In order to build a supportive culture and climate for every member of our community, we recognize that we each of have unique EDI strengths to share with others and that we also have areas for EDI growth, learning, and change. This EDI commitment and cultural humility helps us collectively build a university community and culture where everyone experiences belonging.

Religious accommodation policy

Per Tulane’s religious accommodation policy as stated at the bottom [Tulane’s academic calendar](https://registrar.tulane.edu/Academic_Calendar), I will make every reasonable effort to ensure that students are able to observe religious holidays without jeopardizing their ability to fulfill their academic obligations. Excused absences do not relieve the student from the responsibility for any course work required during the period of absence. Students should notify me within the first two weeks of the semester about their intent to observe any holidays that fall on a class day or on the day of the final exam.

## Course Schedule

This schedule is subject to change; for the most recent version, look at the course schedule on Canvas

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|  | **Topics** | **Reading:** from *Logic* (Baronett),unless otherwise noted; readings should generally be done before class |
| **Week 1**  M 8/22 (day 1) | * Course introduction |  |
| W 8/24 (day 2) | * Arguments, validity, soundness |  |
| F 8/26 (day 3) | * Necessary and Sufficient Conditions | “Sufficient and Necessary Conditions” pp 321–22 in Ch 7, section A |
| **Week 2**  M 8/29 (day 4) | * Non-deductive arguments | Ch 1, section E |
| W 8/31 (day 5) | * Translations from English to truth-functional (propositional) logic | Ch 7, section A |
| F 9/2 (day 6) | * More translations |  |
| **Week 3**  M 9/5 | Labor Day—No Class |  |
| W 9/7 (day 7) | * More translations |  |
| F 9/9 (day 8) | * Rules for well-formed formulas (wffs) * Finding the main logical operator of a sentence | Ch 7, section B |
| **Week 4**  M 9/12 (day 9) | * Finish main operator * PL terminology and remaining translation issues |  |
| W 9/14 (day 10) | * Truth-functionality of operators * Truth tables of the 5 operators   **Homework 1 Due** | Ch 7, section C (you can skip the final subsection, “Propositions with Assigned Truth Values”) |
| F 9/16 (day 11) | * Building truth tables | Ch 7, sections D |
| **Week 5**  M 9/19 (day 12) | * Using truth tables to prove validity | Ch 7, section G |
| W 9/21 (day 13) | * Truth table short cuts * Time Permitting: Weird cases of validity |  |
| F 9/23 (day 14) | * Truth-Functional Equivalence | “Logical Equivalence” in Ch 7, section F |
| **Week 6**  M 9/26 (day 15) | * Time Permitting: Is the Material Conditional *really* Equivalent to English Conditionals?   **Homework 2 Due** |  |
| W 9/28 (day 16) |  |  |
| F 9/30 (day 17) | **Exam 1** |  |
| **Week 7**  M 10/3 (day 18) | * Introduction to natural deduction * Implication Rules I | Ch 8, sections A and B |
| W 10/5 (day 19) | * Tactics for natural deduction * Implication Rules II | Ch 8, sections C and D |
| F 10/7 | Fall Break—No Class |  |
| **Week 8**  M 10/10 (day 20) |  |  |
| W 10/12 (day 21) | * Working backwards |  |
| F 10/14 (day 22) | * Replacement Rules, part 1 | Ch 8, section E |
| **Week 9**  M 10/17 (day 23) | * Replacement Rules, part 2 | Ch 8, section F |
| W 10/19 (day 24) | **Homework 3 Due** |  |
| F 10/21 (day 25) | * Conditional Proof | Ch 8, section G |
| **Week 10**  M 10/24 (day 26) | * Indirect Proof | Ch 8, section H |
| W 10/26 (day 27) | * Time Permitting: Relationship between truth-functional validity and logical validity; motivation for predicate logic |  |
| F 10/28 (day 28) | * Introduction to predicate logic: predicates, constants * Adding operators of propositional logic   **Homework 4 Due** | Kelley and Hutchins, Ch 10: introductory section and section 10.1A (available on Canvas) |
| **Week 11**  M 10/31 (day 29) | **Exam 2** |  |
| W 11/2 (day 30) | * Introduction to quantified sentences | Kelley and Hutchins, Ch 10, section 10.1B–10.2 (available on Canvas) |
| F 11/4 (day 31) | * Quantified sentences are equivalent to conjunctions/disjunctions * Quantifier Negation Rule * Translating AEIO claims |  |
| **Week 12**  M 11/7 (day 32) | * Finish AEIO claims * Using Quantifier Negation to Check Equivalence * Time Permitting: More complex AEIO claims |  |
| W 11/9 (day 33) | * More complex AEIO sentences | Kelley and Hutchins, Ch 10, section 10.3 (available on Canvas)  Baronett, Ch 5, section H (you only need to read the subsections titled “Exclusive Propositions” and “The Only”)  Baronett, Ch 9, section A (you only need to read the subsection titled “Paying Attention to Meaning”) |
| F 11/11 (day 34) |  |  |
| **Week 13**  M 11/14 (day 35) | * Converses of AIEO claims * Existential Import * Scope of quantifiers and main operators |  |
| W 11/16 (day 36) | * Introduction to Nested Quantifiers |  |
| F 11/18 (day 37) | **Homework 5 Due** |  |
| Thanksgiving Break, November 21–27  No Class |  |  |
| **Week 14**  M 11/28 (day 38) | * Finish Nested Quantifiers * Free/Bound Variables * Substitution Instances |  |
| W 11/30 (day 39) | * Introduction to Natural Deduction with Predicate Logic |  |
| F 12/2 (day 40) | * Universal Elimination (UE) and Universal Introduction (UI) |  |
| **Week 15**  M 12/5 (day 41) | * Existential Introduction (EI) and Existential Elimination (EE) |  |
| W 12/7 (day 42) |  |  |
| F 12/9 (day 43) | * Relationship between truth-functional validity, quantificational validity, and logical validity   **Homework 6 Due** |  |
| Final Exam: <https://registrar.tulane.edu/sites/registrar.tulane.edu/files/Fall%202022%20Final%20Examination%20Schedule.pdf> | | |
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**Time Management: Suggested Course Rhythm**

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| **Sunday** | **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
|  | Attend Class |  | Attend Class |  | Attend Class |
| Complete reading for class  (~1 hour) | After class, review new material  Write down any questions that come up, to ask in class/office hours  (~30-45 minutes) | Complete reading for class  Work on Homework or Prepare for Exams  (~2 hours) | After class, review new material  Write down any questions that come up, to ask in class/office hours  (~30-45 minutes) | Complete reading for class  Work on Homework or Prepare for Exams  (~2 hours) | After class, review new material  Write down any questions that come up, to ask in class/office hours  (~30-45 minutes) |
|  | | | | Office Hours 1:00–3:00pm  (105E Newcomb Hall) |  |

This is *one* possible way of planning your work in the course. Treat this as a starting point for you to adjust to fit your circumstances.

Title IX:

Tulane University recognizes the inherent dignity of all individuals and promotes respect for all people. As such, Tulane is committed to providing an environment free of all forms of discrimination including sexual and gender-based discrimination, harassment, and violence like sexual assault, intimate partner violence, and stalking. If you (or someone you know) has experienced or is experiencing these types of behaviors, know that you are not alone. Resources and support are available: you can learn more at [allin.tulane.edu](http://allin.tulane.edu/).  Any and all of your communications on these matters will be treated as either “Confidential” or “Private” as explained in the chart below. Please know that if you choose to confide in me I am required by the university to share your disclosure in a Care Connection to the Office of Case Management and Victim Support Services to be sure you are connected with all the support the university can offer.  The Office of University Sexual Misconduct Response and Title IX Administration is also notified of these disclosures.  You choose whether or not you want to meet with these offices. You can also make a disclosure yourself, including an anonymous report, through the form at [tulane.edu/concerns](https://cm.maxient.com/reportingform.php?TulaneUniv&layout_id=0).

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| **Confidential** | **Private** |
| Except in extreme circumstances, involving imminent danger to one’s self or others, nothing will be shared without your explicit permission.   * Counseling & Psychological Services (CAPS) | (504) 314-2277 * The Line (24/7) | (504) 264-6074 * Student Health Center | (504) 865-5255 * Sexual Aggression Peer Hotline and Education (SAPHE) | (504) 654-9543 | Conversations are kept as confidential as possible, but information is shared with key staff members so the University can offer resources and accommodations and take action if necessary for safety reasons.   * Case Management & Victim Support Services | (504) 314-2160 or [srss@tulane.edu](mailto:srss@tulane.edu) * Tulane University Police (TUPD) | Uptown - (504) 865-5911 | Downtown – (504) 988-5531 * Office of University Sexual Misconduct Response and Title IX Administration | (504) 865-5611 or [titleix@tulane.edu](mailto:titleix@tulane.edu) * Student Affairs Professional On-Call (24/7) | (504) 920-9900 |

Emergency Preparedness & Response

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| **EMERGENCY NOTIFICATIONS: TU ALERT** | **SEVERE WEATHER** |
| In the event of a campus emergency, Tulane University will notify students, faculty, and staff by email, text, and/or phone call. You were automatically enrolled in this system when you enrolled at the university.  Check your contact information annually in Gibson Online to confirm its accuracy. | * Follow all TU Alerts and outdoor warning sirens * Seek shelter indoors until the severe weather threat has passed and an all-clear message is given * Do not use elevators * Do not attempt to travel outside if weather is severe   Monitor the Tulane Emergency website (tulane.edu/emergency/) for university-wide closures during a severe weather event |
| **ACTIVE SHOOTER / VIOLENT ATTACKER** | **EVERBRIDGE APP** |
| * **RUN** – run away from or avoid the affected area, if possible * **HIDE** – go into the nearest room that can be locked, turn out the lights, and remain hidden until all-clear message is given through TU ALERT * **FIGHT** – do not attempt this option, except as a last resort * For more information or to schedule a training, visit emergencyprep.tulane.edu | * Download the Everbridge app from the App Store or Google Play store * The Report feature allows you to silently and discreetly communicate with TUPD dispatchers * The SOS button allows you to notify TUPD if you need help * The Safe Corridor button serves as a virtual escort and allows you to send check-in notifications to TUPD |

**From: Tulane Office of Emergency Preparedness and Response**