Logic: Course Syllabus (Fall 2022)

|  |  |  |  |
| --- | --- | --- | --- |
| Instructor | Brendan Shea, Ph.D. | Course number | PHIL 1145-71 |
| Contact Info | [Brendan.Shea@rctc.edu](mailto:Brendan.Shea@rctc.edu)  507-722-1146 | Prerequisites | None (However, this is a college-level class, so you should be comfortable with reading college-level texts and writing responses to these. See below for more details.) |
| Office | M2403Q | Class location | Online |
| Zoom Office Hours | Fri 10-12 (Open)  **Friday 1p to 3p Class Zoom** | Class time | Asynchronous**. Optional Live Zoom** **Friday 1 to 3** at Class Zoom Link |
| **Class Zoom Link** | <https://minnstate.zoom.us/j/99874991922> Passcode: 312566 | | |

**Calendar revised 10/3/2022 (Calendar Updated)**

Welcome to PHIL 1145: Logic! I'm your instructor, Brendan Shea (I prefer "Brendan"; "Dr. Shea" or "Prof. Shea" work if you are feeling formal). If you have short questions (not answered here), email is generally the best way to get ahold of me. For more detailed questions about the class, I'd encourage you to talk to me during office hours or email me to set up an appointment.

**Course Description.** This course is an introduction to the systematic study of reasoning and argumentation. Students will learn how informal and formal logic can be used to evaluate the strength or validity of arguments, especially ones drawn from ordinary language. They will also develop the capacities to recognize common fallacies, and to apply the methods of logic to problems of contemporary interest. While this course challenges students with abstract reasoning, the study of logic will demystify the underlying structure of language, highlight abuses of reason, teach the values of critical reading, and suggest strategies for formulating coherent, well-reasoned writing. (Prerequisites: None). (3 credits, 3 hrs./week)

# Course Content and Learning Outcomes

**Outline of Major Content Areas.**

1. Informal Logic
   1. Recognizing argument structure
   2. Deductive and inductive arguments
   3. Argument evaluation
   4. Common fallacies
2. Categorical Logic
   1. Properties of categorical propositions
   2. Immediate inferences
3. Propositional Logic
   1. Logical operators
   2. Translations
   3. Truth tables
   4. Proof methods in propositional logic
4. Predicate Logic
   1. Translations
   2. Other material as appropriate
5. One or more of the following topics:
   1. Argument diagrams
   2. Categorical syllogisms
   3. Proof methods in predicate logic
   4. Inductive logic
   5. Scientific reasoning
   6. Causal reasoning
   7. Moral and legal arguments
   8. History and philosophy of logic

**Learning Outcomes (General):** The student will be able to:

1. Identify and categorize arguments using the concepts of inductive and deductive logic.
2. Formulate arguments using clear, unambiguous language
3. Discriminate between fallacious and non-fallacious reasoning
4. Explain the relevance of formal methods to real-world problems
5. Represent ordinary language arguments in symbolic form.
6. Appraise the soundness or cogency of arguments.

**Learning Outcomes (Minnesota Transfer Curriculum):**

*Goal 4/Mathematics/Symbolic Systems*: The student will be able to:

1. Illustrate historical and contemporary applications of mathematics/logical systems.
2. Clearly express mathematical/logical ideas in writing.
3. Explain what constitutes a valid mathematical/logical argument (proof).

**RCTC Core Outcomes.** This course contributes to meeting the following RCTC Core Learning Outcome(s):

* **Critical Thinking,** Students will think systematically by integrating skills and using a variety of appropriate resources and methods. They will (1) gather relevant information, (2) make logical connections, (3) synthesize, analyze and evaluate information, (4) articulate and defend ideas, (5) use information to create innovative solutions, and (6) apply the Scientific Method.

# Required and Recommended Course Materials

* I've put together a free course textbook, "A Little More Logical," that lives on <http://wws.persuall.com> . You'll be able to access it directly via D2L.
* This course will require that you have reliable, regular internet access.

# Grading and Course Policies

**Grading Scale:** >=90.0 (A), 80.0-89.9 (B), 70.0 -79.9 (C), 60.0-69.9 (D), <60 (F).

Your final grade is a weighted average of the following:

* **D2L Quizzes (15% total).** These quizzes will consist of objective" (T/F, matching, multiple-choice) questions covering the reading and notes. You'll have THREE chances to take each quiz; only your highest score counts. These will generally be due on FRIDAY.
* **Problem Sets (40% total).** These will allow you to explore course content in more depth than possible in the quizzes. They’ll require you to do to write short essays, complete computer exercises, or similar activities.
* **Perusall Reading Assignments (30% total).** You'll receive credit for taking the time to read and comment on the course textbook on [www.perusall.com](http://www.perusall.com). You'll receive full credit if you take the time to read each page thoroughly, leave a good comment every few pages, and interact with other students' comments. See below for details on grading. These will generally be due on SUNDAY.
* **Final Portfolio/Reflection (15%).** Your final portfolio and reflection will offer you the chance to show me what you've learned in the class.
* **Extra Credit.** There may be occasional opportunities for extra credit. For reasons of fairness, I can't offer extra credit opportunities to individual students, so please don't ask.

**Plagiarism and Academic Integrity.** Your work should be your own—please don't use your classmates, friends, parents, internet sites, etc., to help you write your papers or answer test questions. And when you do use outside sources, make sure to give appropriate citation and acknowledgment for any words, ideas, or arguments. If the preponderance of the evidence suggests cheating has occurred (that is, if the evidence indicates that this is *more likely than not)*, you will receive a failing grade on the assignment. A second violation will lead to a failing grade for the course. Please also see the RCTC statement on academic integrity later in the syllabus.

**Attendance.** Students in face-to-face classes should attend class regularly, while online students are expected to participate in class discussions and activities. If you miss more than two weeks consecutively, or 1/3 of the total class sessions, you may receive a failing grade of FW. This may endanger your ability to receive financial aid. You are responsible for withdrawing from the class if you decide not to continue. I am willing to make exceptions if circumstances require, but you must let me know about these promptly.

# Policy on Late Work

**Please read the following *before* emailing me to request an extension on an assignment.** If you miss a quiz or activity due to a brief sickness, work conflict, class trip, computer malfunction, wedding, auto problem, court date, funeral, sporting event, etc., you do NOT need to email me (though it's okay if you want to give me a heads up). Here are my policies for making up missed or late work:

1. You can submit quizzes up to a week late with no penalty. There will be no further extensions without good reason.
2. Perusall reading assignments can be submitted up to two days late for reduced credit. Credit declines "linearly" (basically, if you submit it one minute late, you get 99.9% of the credit; if you submit it 1.5 days late, you'll get almost no credit).
3. Short essays submitted up to 3 days late will have the score capped at 90%, and those submitted 3 to 7 days late will have their score capped at 80%.
4. The final portfolio cannot be submitted late.

**No late work will be accepted during the last week of class (again, absent exceptional circumstances).** I will make exceptions to these policies if you can demonstrate a genuine need. Please talk to me if anything comes up that is preventing you from succeeding in class.

# RCTC Common Policies

This course will be taught in accordance with the following policies, which apply to ALL RCTC courses. If you have any questions about these, please let me know!

**Academic Integrity Statement**. The primary academic mission of Rochester Community and Technical College (RCTC) is to provide quality learning opportunities for students. Acts of academic dishonesty undermine the educational process and the learning experience for the student and our college community. It is the responsibility of the student to complete their academic requirements with integrity and not engage in acts of cheating, plagiarism, or collusion. The College expects that students are submitting work and materials that reflects their individual learning and efforts within their course, program, and college academic requirements. It is expected that RCTC students will understand and adhere to the concept of academic integrity and to the standards of conduct outlined within this policy. Students who are found to have engaged in an act of academic dishonesty may face academic sanctions through the Academic Integrity Procedure and non-academic misconduct sanctions through the Code of Student Conduct.

**Americans with Disabilities Act.** Rochester Community and Technical College is committed to ensuring its programs, services and activities are accessible to individuals with disabilities, through its compliance with state and federal laws, and System Policy. Appropriate accommodations are provided to those qualified students with disabilities. If you believe you qualify for an academic accommodation, please contact the Director of Disability Support Services, Travis Kromminga at 507-280-2968 or through the Minnesota relay TTY 1-800-627-3529. The office can also be reached via email at [travis.kromminga@rctc.edu](mailto:travis.kromminga@rctc.edu).

**Military Friendly Statement.** Rochester Community and Technical College (RCTC) is a military friendly campus, pledging to do all we can to help military veterans transition into college to complete their educational goals. RCTC is proud to be a Beyond the Yellow Ribbon campus, serving and honoring our veterans, military service members and their families. Through the Veterans Resource Center, RCTC offers student veterans an on-campus point of contact with other veterans, and program information to assist them in making a successful transition into college. For assistance, students are encouraged to contact the Veterans Assistant Coordinator, Mark Larsen, at 507-779-9375 or email at mark.larsen@state.mn.us, or Othelmo da Silva, RCTC's VA certifying official at 507-285-7566 or email at [VeteranServices@rctc.edu](mailto:VeteranServices@rctc.edu).

**Title IX Statement.** Sexual violence and other forms of sexual misconduct is prohibited at Minnesota State colleges and universities (Minnesota State). Any individual who has been, or is being, subjected to conduct prohibited by the Sexual Violence Policy is encouraged to report the incident. Individuals may choose to file a complaint anonymously using the online reporting tool  https://www.rctc.edu/[services](https://nam02.safelinks.protection.outlook.com/?url=https%3A%2F%2Fwww.rctc.edu%2Fservices%2Fstudent-affairs%2Ftitle-ix%2F%3Fdoing_wp_cron%3D1660068286.6463758945465087890625&data=05%7C01%7Cbrendan.shea%40rctc.edu%7C0adb38c76b734cc0362508da81ef6185%7C5011c7c60ab446ab9ef4fae74a921a7f%7C0%7C0%7C637965167519995936%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=CH2AJkL6j4mqWJ32%2FGX2G6aLfZ%2BLKT%2BAaStzdZcUMyY%3D&reserved=0)/student-affairs/title-ix/). Individuals who choose to file anonymous reports are advised that it may be difficult for the college to follow up or take specific action, where information is limited. For additional information please see the RCTC Sexual Violence Policy, [http://www.rctc.edu/policies/system/sexual-violence](https://nam02.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.rctc.edu%2Fpolicies%2Fsystem%2Fsexual-violence&data=05%7C01%7Cbrendan.shea%40rctc.edu%7C0adb38c76b734cc0362508da81ef6185%7C5011c7c60ab446ab9ef4fae74a921a7f%7C0%7C0%7C637965167519995936%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLjAwMDAiLCJQIjoiV2luMzIiLCJBTiI6Ik1haWwiLCJXVCI6Mn0%3D%7C3000%7C%7C%7C&sdata=EBuvGQFN%2FZho376QgWdbND1TcL40rIYlGvXDeOaBskg%3D&reserved=0) or contact Teresa Brown, Title IX Coordinator, at 507-285- 7108 or email at [TitleIX@rctc.edu](mailto:TitleIX@rctc.edu).

# Getting in touch with me (and what to include in an Email)

The best way to get ahold of me is by email, which I will aim to respond to within ONE working day (for simple questions) or TWO working days (for more complex ones). I don’t generally check email on the weekends or holidays. If you don’t hear from me by then, please try emailing me again. To help me provide you with quick, effective feedback, here’s a general template for what I expect in an email.

*Dear Brendan (or Professor Shea):*

*My name is [full name], and I’m a student in [this section] of [this class]. I had a question regarding [identify homework problem, textbook chapter, etc. Be specific and include a copy of anything I might need to answer your question, including the full problem text]. Here’s everything I’ve tried so far to figure out the answer for myself [looked at the syllabus, notes, textbook, etc.], and here’s my best guess as to the answer. Could you help me by doing the following? [Be specific in what you are asking me to do.] [Feel free to include anything else you’d like here. I’m always happy when students send along ideas/links/whatever vaguely relating to logic and philosophy 😊]/*

As a rule, I will not respond to emails asking me to exempt you from class policies without excellent reason (e.g., for late-work extensions outside the conditions outlined above) or emails that lack basic information (your full name, class, etc.). For long or complex questions, I highly encourage you to schedule an appointment so that we can talk (either in person, by phone, or via Zoom).

# Course Calendar

The following calendar indicates the due dates for each assignment. Quizzes will generally be due on **Fridays**, while Perusall reading assignments will be due on **Sundays**. Problems I will let you know about any changes via D2L.

|  |  |  |  |
| --- | --- | --- | --- |
| Week | Week Starting | Topics | Notes |
| 1 | 8/21 | Syllabus, Chapter 0: Learning Logic | No Zoom meeting |
| 2 | 8/28 | Chapter 1: Logic Basics | First Zoom meeting |
| 3 | 9/4 | Chapter 2: Argument Types | PS1 Due 9/12 |
| 4 | 9/11 | Chapter 3: Intro to Fallacies |  |
| 5 | 9/18 | Chapter 4: Fallacies of Weak Induction |  |
| 6 | 9/25 | Chapter 5: Bullshit! | PS2 Due 10/3 |
| 7 | 10/2 | Chapter 6: Moral and Legal Reasoning |  |
| 8 | 10/9 | Logic at the Movies: Inductive Reasoning | Extra Credit Assignment |
| 9 | 10/16 | Chapter 7: Scientific Reasoning | No Zoom meeting – Education MN conference, |
| 10 | 10/23 | Chapter 8: Philosophy of Science |  |
| 11 | 10/30 | Problem Set 3 Work Week | PSET 3 Due 11/7 |
| 12 | 11/6 | Chapter 9: Formal Language |  |
| 13 | 11/13 | Chapter 9 pt 2: Python as a Logical Language |  |
| 14 | 11/20 | Chapter 10: Probability and Statistics | No Zoom meeting (Thanksgiving) |
| 15 | 11/27 | Chapter 10, Pt 2: Statistics Using Python | PSET 4 Due 12/5 |
| 16 | 12/4 | Final Project Work Week | Final Project Due 12/12 |
| 17 | 12/11 | Last Week of Class | No Zoom Meeting, Final Project Due 12/12 |