

Mount St. Mary's University  
PHI 010 Critical Thinking MWF 11:30-12:30pm  
Chalon Campus, HUM405B

Instructor: Nate Greely  
Email: [ngreely@msmu.edu](mailto:ngreely@msmu.edu)  
Office Hours: MW 10:30-11:30am HUM320

**Course Description:**

This course is an introduction to critical thinking. Critical thinking is the ability to make decisions based on truth-preserving forms of reasoning. That is, we want to know what is true and to use that knowledge to make decisions that improve our lives and the lives of those we care about. However, our brains often use shortcuts that create blind spots in our reasoning. In this course we will learn to identify these shortcuts, understand why they can hinder our ability to make good decisions, and practice more rigorous strategies for decision-making. These strategies will include deductive, inductive, statistical, and causal reasoning. We will then learn how to apply the knowledge produced by these more rigorous forms of reasoning to our own lives using decision theory.

**Learning Outcomes:**

Students will learn to identify fallacious reasoning caused by cognitive biases and heuristics. They will then learn to use deductive, inductive, statistical, and causal reasoning in decision-making. These skills can be applied in many areas, including casual conversation, political debate, understanding and assessing scientific information, and making informed economic decisions.

**Assessments:**

Evidence shows that active learning is essential to understanding. This is particularly important for a course like this in which we are learning a skill, much like a learning sport or a musical instrument. You must practice. To that end a large percentage of class time will consist of group activities and there will be regular homework assignments. Regular practice is essential. The course will be broken into six units, each of which will be punctuated by an active review and exam. These short exams are designed to be quite easy if you attend regularly and participate in learning activities. There will also be a midterm exam and final exam. The breakdown of your final grade is as follows:

**Attendance and Participation – 15%**

Critical thinking is a skill, and so it requires practice. Much of this practice will occur in class with your peers. Attendance and participation, then, are a crucial component of the course and will constitute 15% of your final grade. You may miss two class sessions without an excuse and still receive full marks for attendance and participation.

**Homework Completion – 25%**

In addition to in-class activities, we will also develop critical thinking abilities by practicing at home. This

will take the form of short homework assignments. The assignments will be graded on completion rather than accuracy and answers will be discussed in class. Homework constitutes 25% of your final grade.

### **Unit Quizzes – 3.33% each (total 20%)**

The course is broken into six units. Each unit is punctuated by a short, in-class quiz. Quizzes are each 3.33% of your final grade, totaling 20%.

### **Midterm Exam – 20%**

A midterm exam will be held in class 10/6 and 10/8. The exam will be cumulative. Part of the prior class session will be devoted to review for the midterm. The midterm constitutes 20% of your final grade.

### **Final Exam – 20%**

A final exam will be held in class 12/11 at 11:30am. The exam will be cumulative. Part of the prior class session will be devoted to review for the final. The final constitutes 20% of your final grade.

### **Textbooks:**

[Basic Sentential Logic, Informal Fallacies, and Cognitive Biases](#)

[Download Basic Sentential Logic, Informal Fallacies, and Cognitive Biases](#) by Rick Grush (provided on Canvas)

Understanding Scientific Reasoning by Ronald Giere (provided on Canvas); [Ch.5 Download Ch.5](#); [Ch.6 Download Ch.6](#); [Ch.7 Download Ch.7](#); [Ch.8 Download Ch.8](#); [Ch.9 Download Ch.9](#); [Ch.10](#)

[Download Ch.10](#)

### **Course Schedule:**

8/25 – Course Introduction

8/27 - Truth and Inference; [Lecture Slides](#)

[Download Lecture Slides](#); Informal Fallacies; Reading: Grush, Ch. 5, pp. 98-106; [Lecture Slides Download Lecture Slides](#)

8/29 – Informal Fallacies cont.; [Homework 1 Download Homework 1](#); [Optional Exercises Download Optional Exercises](#); [Solutions Download Solutions](#)

9/1 – Labor Day Holiday – No Class

9/3 – Cognitive Biases and Heuristics - Reading: Grush, Ch. 6, pp. 113-121; [Homework 2 Download Homework 2](#); [Lecture Slides Download Lecture Slides](#); [Optional Exercises](#)

[Download Optional Exercises](#)

9/5 – Homework 1 & 2 Due; Review; Quiz 1

9/8 – Arguments – Reading: Grush, Ch. 1, pp. 1-6; [Lecture Slides](#)

[Download Lecture Slides](#); [Lecture Slides Download Lecture Slides](#)

9/10 – Deductive Arguments; [Homework 3](#)

[Download Homework 3.](#)

9/12 – Homework 3 Due; Review; Quiz 2

9/15 - Statement Operators; Reading: Grush, Ch. 1, pp. 6-20; [Optional Exercises](#)

[Download Optional Exercises](#)

9/17 – Logical Translation; Reading: Grush, Ch. 1, pp. 21-28; [Homework 4](#)

[Download Homework 4](#); [Lecture Slides](#)

[Download Lecture Slides](#)

9/19 - Homework 4 Due; Review; Quiz 3

9/22 – Rules of Inference – Reading: Grush, Ch. 3 pp. 65-71; [Homework 5](#)

[Download Homework 5](#); [Lecture Slides](#) [Download Lecture Slides](#); [Lecture Slides](#)

[Download Lecture Slides](#);

9/24 – Homework 5 Due; Deductive Proofs – Reading: Grush, Ch. 3, pp. 75-77; [Lecture Slides](#)

[Download Lecture Slides](#)

9/26 – Deductive Proofs Cont.; [Homework 6](#) [Download Homework 6](#); [Optional Exercises](#) [Download Optional Exercises](#)

9/29 – Homework 6 Due; Review; Quiz 4

10/1 – Inductive Reasoning - Reading: Greely, [Notes posted online](#) [Download Notes posted online](#); [Homework 7](#)

[Download Homework 7](#)

10/3 - Homework 7 Due; Review for Midterm Exam

10/6 – Midterm Exam part 1

10/8 – Midterm Exam part 2

10/10 – Statistics and Probability part 1 – Reading: Giere Ch. 5.1 – 5.6; [Lecture Slides](#)

[Download Lecture Slides](#)

10/13 – Statistics and Probability part 1 cont.; [Lecture Slides](#) [Download Lecture Slides](#)

10/15 – Statistics and Probability part 2 – Reading: Giere Ch. 5.7 – 5.11; [Homework 8 Due](#) [Download Homework 8 Due](#); [Lecture Slides](#)

[Download Lecture Slides](#)

10/17 - Mid-Semester Break No Class

10/20 – Statistics and Probability part 2 cont.; [Homework 9 Due](#)

[Download Homework 9 Due](#)

10/22 – Statistics and Probability part 3 – Reading: Giere Ch. 6; [Lecture Slides](#) [Download Lecture Slides](#)

10/24 – Statistics and Probability part 3 cont.; [Homework 10 Due](#)

[Download Homework 10 Due](#)

10/27 – Review

10/29 – Quiz 5

10/31 – Causal Reasoning part 1 - Reading: Giere Ch. 7; [Homework 9 Due](#)

[Download Homework 9 Due](#); [Lecture Slides Download Lecture Slides](#)

11/3 – Causal Reasoning part 1 cont.; [Homework 11 Download Homework 11 Lecture Slides Download Lecture Slides](#)

11/5 – Causal Reasoning part 1 cont.; Homework 11 Due

11/7 – Causal Reasoning part 2 – Reading: Giere Ch. 8; [Lecture Slides Download Lecture Slides](#)

11/10 – Causal Reasoning part 2 cont.; [Homework 12](#)

[Download Homework 12](#)

11/12 – Causal Reasoning part 2 cont.; Homework 12 Due

11/14 - Review; Quiz 6

11/17 – Decision Theory Part 1 – Reading: Giere Ch. 9; [Lecture Slides](#)

[Download Lecture Slides](#)

11/19 – Decision Theory Part 1 cont.

11/21 – Decision Theory Part 2 - Reading: Giere Ch. 10; [Homework 13 Due Download Homework 13 Due](#); [Lecture Slides Download Lecture Slides](#)

11/24 – Decision Theory part 2 cont.

11/26 – Review; Quiz 7; [Homework 14 Due](#)

[Download Homework 14 Due](#)

11/28 - Thanksgiving Break - No Class

12/1 – Review for Final Exam

12/3 - Review for Final Exam

12/5 - Study Days - No Class

12/11 – [Final Exam](#) due on Canvas; [Extra Credit](#) due on Canvas

**Grading:**

| <b>Numeric</b> | <b>Grade</b> | <b>Numeric</b> | <b>Grade</b> |
|----------------|--------------|----------------|--------------|
| Over 93%       | A            | 73% to 76%     | C            |
| 90% to 92%     | A-           | 70% to 72%     | C-           |
| 87% to 89%     | B+           | 67% to 69%     | D+           |
| 83% to 86%     | B            | 63% to 66%     | D            |
| 80% to 82%     | B-           | 60% to 62%     | D-           |

77% to 79%

C+ <60%

F

### **Diversity and Inclusion**

Mount Saint Mary's University's commitment to equity, diversity and justice (EDJ) is steeped in the tradition and legacy of the Sisters of St. Joseph of Carondelet (CSJ), our Catholic identity, mission and values. We are unwavering in our pursuit of inclusion, belonging and antiracism. We aspire to achieve our love of dear neighbor without distinction, which permeates all forms of social identities and human experiences. We honor and celebrate our similarities and differences. We are committed to the full inclusion of the entire Mount community. Due to historical legacies of exclusion, we offer particular care for underrepresented populations. We define diversity in the broadest sense, including but not limited to, age, differences in culture, citizenship status, disability, family status, gender, gender expression, gender identity, generational history, genetic information, geographic origin, language, political perspectives, mental and physical ability, military service, national origin, race and ethnicity, religion, sexual orientation, size and socioeconomic class. Welcoming individuals from a variety of backgrounds improves and enriches our learning, living and working environments. Any breach of these values harms our community. Mount Saint Mary's University transforms its culture through the radical pursuit of institutionalized change. We strive for a campus where students, staff, faculty, alumnae and all whom we encounter feel welcomed, valued and are supported to reach their full potential. As we pursue our never-ending journey toward a more equitable, inclusive and antiracist campus in our richly diverse community, we welcome you.

### **Change in Modality SOP**

Potential Emergency Disruption: Should the course modality undergo a long-term or permanent change during the semester, the instructor (with permission of the Department Chair/Program Director and approval of the Provost for long-term changes) will provide a comprehensive update of how the class will continue and any changes that may result.

### **University PPE Policy**

All students must comply with the University personal protective equipment (PPE) policy while on campus. Non-compliant students will not be allowed to stay in class.

### **Generative AI/AGI and ChatGPT**

Unless otherwise specified, all assignments and activities for this course require your original and authentic work, submitted for the first time in any academic or professional context. Use of AI-generated material (such as ChatGPT and other AI tools) is academically dishonest unless (1) you are asked to include material using AI as part of an assignment or (2) you request and receive express permission from an instructor.

### **Regular and Substantive Interaction (RSI) Guidelines**

Mount Saint Mary's University, Los Angeles is an institution committed to delivering an exceptional educational experience for its students. As one of our Five Pillars of Distinction, Innovative Teaching and

Learning is woven into the fabric of the University. Therefore, it is our responsibility as an institution to outline and inform our faculty and students in instruction and practice of the “Regular and Substantive Interactions” (RSI) Guidelines set forth by the Department of Education, and subsequently our accreditor, WSCUC Senior College and University Commission (Faculty, visit myMSMU “Just for Faculty” for more information). Substantive interaction refers to a variety of faculty actions that support student learning, such as initiating class activities, facilitating discussions, giving feedback for assignments and responding to student questions. Some of the ways students play a role in substantive interaction include participation with activities, reflecting on topics, listening to their peers and collaborating on group projects.

### **Academic Integrity**

Degree candidates are expected to adhere to the MSMU statements on Academic Integrity in the MSMU catalog and myMSMU. This includes avoiding plagiarism and constructing your best work on each assignment. Papers and other work including images, should not be copied from the Internet. Infractions may be addressed by the MSMU administration and possibly include an Academic Integrity Board review.

### **Academic freedom statement**

For faculty, academic freedom in research, teaching, and publication is fundamental to the advancement of truth and learning. Freedom of thought and expression is essential to fulfill the mission, and obligations, of academics and educators. The student has the freedom to express ideas that differ from any interpretation or any viewpoint presented by an instructor. In exercising this freedom, there should be no disruption of the academic process of the class. The student has the right to be evaluated accurately and fairly on academic performance as outlined by the instructor at the beginning of the course. The student has the right to discuss and review any academic performance with instructors. A student who believes that an evaluation was made on a basis other than academic performance has the right to an appeal procedure. See the University Academic Freedom Policy for more information.

### **Academic Grievance statement**

The Academic Grievance Committee shall receive and investigate complaints, excluding those pertaining to a learning disability (see College Disability Grievance Procedure) that have not been resolved on a lower level (Instructor and Department Chair/Program Director). Students have 14 business days from the posting of grades or dismissal notice to appeal a grade/standing in program. The burden of proof is on the student. A student who believes that the instructor made a clerical error in computing the grade or an egregious error of judgment in evaluating the student’s performance has the right to an appeal procedure. See the University Academic Grievance Policy for more information on the Academic Grievance Committee’s jurisdiction, functions, and resolution process. Email:

[AcademicGrievance@msmu.edu](mailto:AcademicGrievance@msmu.edu)

### **Disability Statement**

MSMU is committed to ensuring the full participation of all qualified students in its programs and activities. MSMU will provide reasonable accommodations to students with disabilities, provided the

accommodations do not create an undue hardship or fundamentally alter the nature of the University's programs or activities. Reasonable accommodations are provided on an individual, case-by-case basis. If you have a documented disability, or if you think you may have a disability, and you need a reasonable accommodation, you must register with Disability Services and follow MSMU's procedures to request accommodations. Disability Services works with students confidentially, through an individualized and interactive process, to identify reasonable accommodations. MSMU does not disclose disability-related information without student consent. Only Disability Services may approve disability accommodations. Each semester, it is the student's responsibility to generate accommodation letters for each instructor through the myDSP portal. After delivery of the accommodation letters, it is the student's responsibility to request a meeting with each instructor, and it is the instructor's responsibility to participate in such a meeting, to discuss the approved accommodations and agree upon how to implement. If the student and instructor are unable to agree on implementation, or if the instructor believes the approved accommodations may compromise the academic integrity or create a fundamental alteration of the course and/or program, both the student and the instructor must consult Disability Services. For further information about services for students with disabilities, contact Disability Services by email at [disability@msmu.edu](mailto:disability@msmu.edu) or by phone at (310) 954-4144. You may also visit the Chalon Academic Support Center, H207, or the Doheny Academic Support Center, Building 3. Information is also available on myMSMU under Student Life, Disability Services.

Please be advised that this class may be audio- or video-recorded as an accommodation under the American with Disabilities Act, but only with prior permission from Disability Services and the instructor. Students may only use such recordings for personal use; no posting or further distribution or use is permitted.

### **Student credit hour policy**

A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that reasonably approximates not less than:

(1)

One hour of classroom or direct faculty instruction and a minimum of two hours of out- of-class student work each week for approximately fifteen weeks for one semester, or the equivalent amount of work over a different amount of time; or

(2)

At least an equivalent amount of work as required in paragraph (1) for other academic activities, including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours

Taken from: <http://msmu.smartcatalogiq.com/en/2016-2018/2016-2018-Catalog/Academic-Policies-and-Procedures/General-Information-for-Undergraduate-Programs/Student-Credit-Hour>

[Links to an external site.](#)

### **Academic Accommodation:**

If you require any form of accommodation on the grounds of disability, please visit this link: <https://www.msmu.edu/academics/academic-support/disability-services/> well in advance so that you can submit the necessary documents.

Contact information is [disability@msmu.edu](mailto:disability@msmu.edu)

**Religious Accommodation:**

If you require any accommodation on religious grounds, please alert me in writing as soon as possible.