

I do not feel obligated to believe that the same God who endowed us with sense, reason, and intellect had intended for us to forgo their use...

- Galileo Galilee (1564 – 1642)

• **Philosophy 125 – Philosophy of Science**

Section 2 (36061)

Spring 2018 (January 22nd – May 11th)

Days: Monday/Wednesday 7:30 AM – 8:45 AM

Room: Douglas Hall 208

Satisfies General Education Area A3 (see course objectives/requirements below)

Instructor: J. P. Carboni

E-mail: philosophy.carboni@gmail.com Joshua.carboni@csus.edu

Mailbox: Philosophy Department Office: Mendocino Hall Room 3000

Office Hours: **Monday 5:00 PM – 6:00 PM**
Wednesday 9:00 AM - 9:45 AM
Friday 11:00 – 12:00 PM
Mendocino Hall 3032

Course Catalogue: Study of the philosophical problems that arise in the sciences: the nature of scientific reasoning, the limits and styles of explanation, identifying pseudoscience, values in science, unity and diversity of the sciences, and science's impact on our world view.

• **Required Textbook:**

Worldviews: An Introduction to the History and Philosophy of Science, 2nd Edition by Richard DeWitt. ISBN-13 978-1405195638

• **Learning Objectives for Phil 125:**

By the end of this course and successful completion of all course requirements, the student will be able to do all of the following:

- Accurately summarize the central questions and debates facing philosophers of science today
- Compare and contrast the predominant philosophical positions on such questions and debates
- Explain the importance of such issues by appeal to specific episodes from the history of scientific thought
- Exercise an improved ability to think philosophically about today's scientific research and findings.

• **Area B-5 – Further Studies Learning Outcomes:**

Students will be able to:

For courses in physical science or life form:

- Develop an understanding of the principles underlying and interrelating natural phenomena including the foundations of our knowledge of living systems.

- Introduces students to one or more of the disciplines whose primary purpose is to acquire knowledge of the physical universe and/or its life forms rather than merely to apply existing knowledge.
- Develop an appreciation of the methodologies of science, the requisite features of scientific endeavors, and the limitations of scientific inquiry.

Students will:

1. Demonstrate a knowledge and understanding of natural phenomena.
2. Apply the methodologies of science when approaching a scientific problem.
3. Explain the limitations of scientific inquiry.

These learning objectives will be met through a variety of practical assessments including quizzes, group work, essay writing and verbal communication (class/group participation).

• **Student Standards of Conduct:**

Plagiarism and/or cheating will not be tolerated in this class. All those who engage in these activities will receive a zero on the associated assignment. In addition, all incidents of cheating and/or plagiarism will be reported to the department chair and to the Judicial Officer in the Office of Student Affairs. It is your responsibility to both know and adhere to Sac State's Academic Honesty Policy. This policy can be found at the following address:
<http://www.csus.edu/umannual/student/stu-0100.htm>

If you wish for more assistance/advice on the issue of plagiarism, please see the following CSUS library link <http://csus.libguides.com/home> (information on citing and researching)

In-Class Participation: Purposely "obstructing" the viewpoint of another student in the classroom during classroom discussions is prohibited. This class will involve many discussions concerning the material assigned for homework and the material presented during the classroom lectures. This being a philosophy course, many of these discussions *may* challenge certain beliefs that you hold. Open dialog and proper methods of argumentation (which will be discussed) are not only expected but required for this class.

Attendance/Participation: Students are expected to attend each class session. This class will involve many in-class discussions and a significant amount of in-class work. Students are expected to have completed the readings and participate in all in-class discussions.

Cell Phones and Computers: Please set your phone to vibrate before class. Cell phones are not to be used in class for any reason. If you must take a call (which I discourage unless an emergency) please step outside before you answer. No texting or Internet use will be allowed in class.

Email Correspondence: Monday through Friday I check my Sac State *and* Gmail accounts a minimum of two times each day (morning and evening). If I do not respond to an email that you have sent within one business day, please feel free to resend the email. In order to ensure a prompt reply, all emails that you send must be formatted according to the following link: <http://www.csus.edu/phil/guidance/how-to-correspond.html>

All emails not formatted according to the above link will be answered last.

• **Disability Accommodations:**

If you have a disability and require accommodations, you will need to provide disability documentation to SSWD, Lassen Hall 1008, (916) 278-6955. Information can be found at the following link: <http://www.csus.edu/sswd/ApplicationProcess-Forms.html>. Please discuss your accommodation needs with me after class or during my office hours *before* the end of the third week of the semester.

Special Note: All instructors employed by CSU, Sacramento are ‘mandatory reporters’ of suspected child abuse or neglect according to the *California Child Abuse and Neglect Reporting Act*. As such, I am bound to the requirements established by CSU Executive Order 1083 which can be found at the following link: <http://www.calstate.edu/eo/EO-1083.html>

• **Evaluation/Homework Assignments:**

In-Class Assignments: There will be a number of randomly assigned, short in-class assignments throughout the term. These assignments will be worth a total of 5 – 10 points each (you will be informed of the specific point value when each assignment is given). At the end of the term, a total of 45 points will be possible. There are no make-ups on missed in-class work.

Quizzes: As outlined on the weekly course breakdown below, there will be two types of quizzes in this class.

- (1) **Reading Quizzes:** Prior to each *new section* lecture/new topic, there will be a quiz to be completed prior to the lecture on that reading/subject (see weekly breakdown below for details). These quizzes must be completed in Blackboard and must be completed prior to the scheduled class time. Each Reading Quiz will be made available on the date stated in the weekly breakdown and will be available until 10 minutes before that scheduled class. No make-ups will be given for missing a quiz – unless a doctor’s note is provided (not understanding the quiz breakdown on a syllabus is not a “doctor’s note”). These quizzes will be multiple choice and/or true and false. Each quiz will be worth 10 points. Once you begin a quiz, you will have 20 minutes to complete it.
- (2) **Lecture Quizzes:** This course is scheduled to meet Monday and Wednesday morning. As illustrated in the weekly breakdown below, each class session will involve a lecture/class discussion on the material assigned for that class. At the end of each week (after Wednesday’s lecture each week) students will be required to complete a short quiz on the lecture material provided. This quiz will be available in Blackboard on Wednesday after class and must be completed no later than 11 PM on Friday. Once you begin a quiz, you will have 20 minutes to complete it. Like each Reading Quiz, the Lecture Quizzes will be multiple choice and/or true and false. Each Lecture quiz will be worth 10 Points.

There will be no make-up quizzes if you miss a quiz (either type). I will, however, drop the lowest score received on each type of quiz at the end of the semester (one reading quiz and one lecture quiz). To do well on these quizzes and thus to do well in the class as a whole, you should make sure to attend class, to actively participate in the lecture and to complete the assigned readings.

Writing Assignments:

There will be three writing assignments in this class. For each assignment, you will be provided with assignment topics, structural details and a grading rubric two weeks prior to the due date for each essay. Assignments must be handed in at the beginning of class on the day that they are due. No emailed essays or electronically submitted essays will be accepted. Late essays will be docked 5 points for every day that they are late (excluding Saturday and Sunday). If your essay is late, you must arrange a method to hand in the essay with me after the class that the essays are due.

Two Essay Option

Essay #1 Due: March 7th

Essay # 2 Due: May 7th

One Essay Option

Essay Due: May 7th (Assignment given April 7th)

Basic Essay Guidelines:

Students are expected to adhere to the guidelines posted in both “Writing Guidelines” & “How to Analyze a Philosophical Essay” that are located on the CSUS Department of Philosophy webpage. This information will be reviewed in class on *Monday of Week 5* (prior to the first essay being due). Below is the link to the webpage:

<http://www.csus.edu/phil/guidance/writing%20guidelines.html>

Below is a link to the department’s outline of proper philosophic analysis:

Philosophical Analysis: <http://www.csus.edu/phil/guidance/how-to-analyze.html>

Below is a link to the Department Grading Guidelines:

Grading Standards: <http://www.csus.edu/phil/guidance/grading-standards.html>

Examinations: There will be two examinations in this class (a midterm and a final exam). There will be a comprehensive review held on the Wednesday/Friday before each exam. There will be no make-ups on exams - except with “extraordinary” circumstances - so schedule outside activities accordingly. Note: Extraordinary circumstances do not include *personal* athletic activities, vacations, car not starting, bought an early plane ticket home/for family vacation, just not feeling like it, etc. A doctor’s note (or something similar) will be required to schedule a make-up exam.

Midterm Exam: **Wednesday, March 14th (Week 8)**

Final Exam: **TBA**

Extra Credit: There will be one extra credit assignment offered in the Spring 2018 term. This assignment, which will be announced during Week 2, will involve attending a CSUS Ethics Center event. Detailed instructions will be provided for this assignment, including specific event details, during the second week of class. Below are the links to the two event homepages:

Center for Practical and Professional Ethics: <http://www.csus.edu/cppe/>

Grading Scale:

All essays will be graded based upon an 100-point scale according to the following breakdown:

A Outstanding (75 - 80 pts)	A- Very Good (72 - 74 pts)
B+ Above Satisfactory (68.5 - 71 pts)	B Satisfactory (67 - 68 pts)
B- Below Satisfactory (64 - 67 pts)	C+ Above Average (61 - 63 pts)
C Average (58 - 60 pts)	C- Below Average (56 - 57 pts)
D+ Poor High (53 - 55.5 pts)	D Poor Low (48 - 52 pts)
F Unacceptable (47 and lower pts)	

All Examinations will be graded based on a 100-Point scale according to the following breakdown:

A Outstanding (100 - 95 pts)	A- Very Good (94 - 90 pts)
B+ Above Satisfactory (89 - 86 pts)	B Satisfactory (83 - 85 pts)
B- Below Satisfactory (82 - 80 pts)	C+ Above Average (79 - 76 pts)
C Average (75 - 73 pts)	C- Below Average (72 - 70 pts)
D+ Poor High (69 - 66 pts)	D Poor Low (65 - 60 pts)
F Unacceptable (59 and lower pts)	

• Total Point Breakdown:

Reading Quizzes (x18 = 180 pts) – 160 after 1 dropped quiz

Lecture Quizzes (x13 = 130 pts) – 120 after 1 dropped quiz

Two Essay Option:

Essay #1: 100 possible pts

Essay #2: 100 possible pts

One Essay Option:

Essay #1: 200

Midterm Examination: 125 possible pts

Final Examination: 125 possible pts

In Class Work: 45 possible points

Total Points Possible 775

Final Grade Breakdown: A 775 – 725 pts; A- 724 – 691 pts; B+ 690 – 663 pts; B 662 – 648 pts; B- 647 - 616 pts; C+ 615 – 586 pts; C 585 - 562 pts; C- 561 – 539 pts; D+ 538 – 500 pts; D 499 – 485; D- 484 – 461; F 460 or lower points

Reading/Assignment Schedule

Note: (1) All **Reading Quizzes** must be completed no later than 10 minutes prior to the class

listed for each quiz

(2) All **Lecture Quizzes** will be posted to Blackboard after the final class of the week

(usually Wednesday) and must be completed by 11 PM on Friday each week

Week 1: (1/22 – 1/26)

For Monday

Class Introduction – What Is Philosophy, What Is Philosophy of Science, and Why We Are Not Entitled to Our Opinions?

For Wednesday *In Class Assignment #1: Are We Entitled to Our Opinions? (No reading)*

Week 2: (1/29 – 2/2)

For Monday: **The Nature of Truth** - Dewitt, Chapter 2: *Truth* (Pgs 17-32)
• **Due: Reading Quiz #1 (Posted to Blackboard on 1/26)**

For Wednesday: **The Nature of Facts** – DeWitt, Chapter 3: Empirical Facts and Philosophical/Conceptual Facts (Pgs. 32 – 38)
• **Lecture Quiz #1 (Due by 11 PM Friday - Posted to Blackboard on 1/31)**

Week 3: (2/5 – 2/9)

For Monday **Good Science and Bad Science** – DeWitt, Chapter 4 Confirming and Disconfirming Evidence and Reasoning (Pgs. 38 – 46) & Sections 1, 2 and 3 from <https://plato.stanford.edu/entries/pseudo-science/#PurDem>
• **Due: Reading Quiz #2 (Posted to Blackboard on 2/2)**

For Wednesday **What Do You Mean It's False?** – DeWitt, Chapter 7, Falsifiability (66 – 71)
• **Due: Reading Quiz #3 (Posted to Blackboard on 2/5)**
• **Lecture Quiz #2 (Due by 10 AM Friday - Posted to Blackboard on 2/9)**

Week 4: (2/12 – 2/16)

For Monday **Method, Man: What is this Method You Keep Talking About? - What is the Scientific Method and is it Reliable?** – DeWitt, Chapter 5 The Quine–Duhem Thesis and Implications for Scientific Method (Pgs 46 –58)
• **DUE: Reading Quiz #4 (Posted to Blackboard on 2/9)**

For Wednesday **Humpty Dumpty Had a Great Fall, Probably** - *Philosophic Interlude: Problems and Puzzles of Induction* (Pgs. 58 – 66)
• **Lecture Quiz #3 (Due by 10 AM Monday - Posted to Blackboard on 2/16)**

Week 5: (2/19 – 2/23)

For Monday **Everyone Loves Their Own Writing: How to Write a Philosophic Essay** (Please Read links under *Basic Essay Guidelines* above)
• **DUE: Reading Quiz #5 (Posted to Blackboard on 2/16)**

For Wednesday **Philosophic Interlude: A Short Discussion of Alternative Facts Or How I Stopped Worrying and Came to Love the Truth (No Reading Due – Video Posted Under Additional Content in Blackboard on 2/19)**
• **Due: Reading Quiz #6 (Posted to Blackboard on 2/19)**

• **Lecture Quiz #4 (Due by 10 AM Monday - Posted to Blackboard on 2/23)**

Week 6: (2/26 – 3/2)

For Monday

Say What You Will, But Togas Are Just Darn Comfortable: Science qua Teleology – DeWitt, Chapter 9: The Structure of the Universe on the Aristotelian Worldview (Pgs. 81 – 87)

• **Due: Reading Quiz #7 (Posted to Blackboard on 2/26 – Due on 2/28)**

For Wednesday

Aristotle Continued – Teleology: It's all in Your Understanding of the End Game, Man!

• **DUE: Reading Quiz #8 (Posted to Blackboard on 2/28 – Due on 3/2)**

• **Lecture Quiz #5 (Due by 10 AM Monday - Posted to Blackboard on 3/2)**

Week 7: (3/5 – 3/9)

For Monday

Just Who Did Aristotle Think He Was? – DeWitt, Chapter 10
The Preface to Ptolemy's Almagest: The Earth as Spherical, Stationary, and at the Center of the Universe (Pgs 87 – 99)

• **Due: Reading Quiz #9 Based on DeWitt (Posted to Blackboard on 3/2)**

For Wednesday **Midterm Review**

• **Due: Reading Quiz #10 – Based on Midterm Study guide (Posted to Blackboard on 3/2)**

• **Essay #1 Due (If you chose the one essay option)**

• **Lecture Quiz #6 (Due by 10 AM Monday - Posted to Blackboard on 3/9)**

Week 8: (3/12 – 3/16) – **Midterm Week**

For Monday:

Wrap Up If Needed & In-Class Assignment (Materials provided in-class) & further review for Midterm Exam

For Wednesday

Midterm Exam 3/14 (Normal Class Time – Exam Posted to Blackboard in the “Examinations Folder” – Please follow all instructions listed on the Midterm Exam Review Guide)

• **No lecture quiz for Week 8**

Week 9: (3/19 – 3/23) **No Classes: Spring Break**

Week 10: (3/26 – 3/30)

For Monday

What Happens When *^#%#@# Gets Crazy, Yo: The Copernican Revolution Blew People's Minds! – DeWitt, Chapter 14 The Copernican System (Pgs 123 -134)

• **Due: Reading Quiz #11 (Posted to Blackboard on 3/23)**

For Wednesday Copernicus Continued: The Philosophic Implications of Copernicus

• **Lecture Quiz #7 (Due by 10 AM Monday - Posted to Blackboard on 3/30)**

Note: Friday (3/30) there are no classes - Cesar Chavez Holiday (this does not impact our class)

Week 11: (4/2 – 4/6)

For Monday

Two Totally Rad Dudes – Dude 1: Tycho Brahe – DeWitt, Chapter 15 The Tychonic System; Dude 2: Johannes Kepler – DeWitt, Chapter 16: Kepler's System

• **Due: Reading Quiz #12 (On Both Readings for this week - Posted to Blackboard on 4/2)**

For Wednesday Class Canceled

• **Lecture Quiz #8 (Due by 10 AM Monday - Posted to Blackboard on 4/6)**

- **NOTE: Lecture topics may carry over from this point on. Please read and complete all assignments according to the schedule as listed.**

Week 12: (4/9 – 4/13)

For Monday

Science vs. Pseudo-Science Read Section 2, 3, and 5 in <https://plato.stanford.edu/entries/pseudo-science/#PurDem>

For Wednesday Finish Science vs. Pseudo-Science

• **Single Essay Assignment Prompt Provided (April 11th)**

• **Lecture Quiz #9 (Due by 10 AM Monday - Posted to Blackboard by 4/13)**

Week 13: (4/16 – 4/20)

For Monday

Eppur Si Muove – DeWitt, Chapter 17 and Start The Need For A New Science – DeWitt Chapter 18 (Please begin Reading Chapter 18)

For Wednesday Finish The Need for a New Science – DeWitt, Chapter 18; What Does This Mean for Philosophers? & The Laws of Science – DeWitt, Chapter 20 & DeWitt, Chapter 21

Due: Reading Quiz #13 & 14 (Posted to Blackboard on 4/16)

• **Lecture Quiz #10 (Due by 10 AM Monday - Posted to Blackboard by 4/20)**

Week 14: (4/23 – 4/27)

For Monday

Newton: The Man With The Plan – DeWitt, Chapter 20 & 22

• **Due: Reading Quiz #15 (Posted to Blackboard on 4/13)**

For Wednesday *Did Einstein Want to Be a Stand-Up Comedian? He Already Had the Weird Hair!* – DeWitt, Chapter 23 and *START: Einstein Gets a Hair Cut* – DeWitt, Chapter 24

- **Due: Reading Quiz #16 (Posted to Blackboard on 4/23)**
- **Review of Writing Assignment #2 (if two essays chosen)**
- **Lecture Quiz #11 (Due by 10 AM Monday - Posted to Blackboard by 4/27)**

Week 15: (4/30 – 5/4)

For Monday *At the Microscopic Level, It Just Gets Weird* – DeWitt, Chapter 25

For Wednesday DeWitt, Chapter 26 – Bell, Biv, DeVoe ... sorry, I meant Aspect Theory

- **Due: Reading Quiz #17 (Quiz Will Be Taken IN- CLASS on Monday, April 30th)**
- **Lecture Quiz #12 (Due by 10 AM Monday - Posted to Blackboard by 5/4)**

Week 16: (5/7 – 5/11)

For Monday *Is Evolution Real – Let's Evolve... an Answer* – DeWitt, Chapter 27

- **Due: Reading Quiz #18 (Posted to Blackboard on 5/4)**
- **Due: Essay Assignment #2 &/Or Single Essay Assignment**
- **Final Exam Study Guide Provided**

For Wednesday *Why I'm Always Right ... Can Science Tell Us What's Right and Wrong?* – DeWitt, Chapter 28 (Additional Reading to be Posted to Blackboard)

- **Final Exam Review**
- **Lecture Quiz #13 (Due by 10 AM Monday - Posted to Blackboard by 5/11)**

Week 17: (5/14 – 5/18)

Final Examination Week – Date TBA

General Assignment Due Dates (See Next Page)

Quizzes Breakdown:

Reading Quizzes Due Dates:

RQ1 – Monday, 1/29
RQ2 – Monday, 2/5
RQ3 – Wednesday, 2/7
RQ4 – Monday, 2/12
RQ5 – Monday, 2/19
RQ6 – Wednesday, 2/21
RQ7 – Wednesday, 2/28
RQ8 – Friday, 3/2
RQ9 – Monday, 3/5
RQ10 – Wednesday, 3/7
RQ11 – Monday, 3/26
RQ12 – Monday, 4/2
RQ13 – Monday, 4/9
RQ14 – Monday, 4/9
RQ15 – Monday, 4/16
RQ16 – Wednesday, 4/25
RQ17 – Monday, 4/30 (Taken In-Class)
RQ 18 – Monday, 5/7

Lecture Quizzes Due Dates:

LQ1- Monday, 2/5
LQ2- Monday, 2/12
LQ3- Monday, 2/19
LQ4- Monday, 2/26
LQ5- Monday, 3/5
LQ6- Monday, 3/12
LQ7- Monday, 4/2
LQ8- Monday, 4/9
LQ9- Monday, 4/16
LQ10- Monday, 4/23
LQ11- Monday, 4/30
LQ12 – Monday, 5/7
LQ13 – Monday, 5/14

Writing Assignments:

2 Essays Chosen

Essay #1 Due: Monday, March 7th

Essay #2 Due: *Monday, May 7th*

1 Essay Chosen

Examinations: Essay Due: Monday, May 7th
Midterm Examination: *Monday, 3/14*

Final Examination: **TBA**