

PROVIDENCE COLLEGE

Department of Arts and Sciences

213.25 – PHIL: Philosophy of Science

Semester: Winter 2010 Credit hours: 3

Class hours: Mondays 11:10 a.m. - 12:25 p.m. & Thursdays 3:20 – 4:35 p.m.

Classroom: Room 1 (Mondays) & room 2 (Thursdays)

Instructor: Hendrik van der Breggen, Ph.D. Office: 2A16

Office hours: Fridays 10:00 a.m.- 4:30 p.m. (by appointment)

Phone: (204) 433 7488 x242

Email: hendrik.vanderbreggen@prov.ca

SYLLABUS

A. COURSE DESCRIPTION

This course consists of a philosophical examination of the scientific enterprise. Topics include the nature of science, scientific methodologies, models of explanation, the assumptions of science, the relation between theory and observation, the realist/instrumentalist status of scientific theories, competing views of the relation between science and theology, plus a philosophical investigation of the scientific status of intelligent design theory. (Note: this course satisfies a Science requirement.)

B. COURSE OBJECTIVES

Upon successful completion of the course, the student should be able to demonstrate the following (by answering the parenthetical questions with reasonable answers):

- A clear understanding of the problems associated with defining science and demarcating it from non-science. (Are there necessary and sufficient conditions that a practice must satisfy for that practice to be a science? If there are, what are they? What do we do if the conditions are extremely difficult to set out?)
- A clear understanding of the nature of scientific inquiry. (Is there *a* scientific method or are there *methods*?)
- A clear understanding of the limits of science. (Does science have philosophical underpinnings that science cannot demonstrate? If it does, what are those philosophical underpinnings? How do we make sense of them?)

Special note to students:

It is your responsibility to retain course syllabi for possible future use to support applications for transfer of credit to other educational institutions.

- A clear understanding of the epistemic status of scientific claims. (Do scientific theories describe the world realistically and accurately, or are they merely useful fictions/ instruments that give us power over nature?)
- A clear understanding of the relationship between theory and observation. (How do theory and observations relate? Are observations so theory-laden that objectivity is an impossible goal?)
- A clear understanding of some major models of how science and theology relate. (Do science and theology have overlapping domains, or not? How should science and theology relate?)
- A clear understanding of the contemporary philosophical discussion over the scientific status of creationism in general and intelligent design theory in particular. (What is intelligent design theory? Should intelligent design be dismissed as unscientific?)

C. COURSE TEXTS AND SUPPLEMENTARY RESOURCES

1. Required Textbooks

Klee, Robert, editor. *Scientific Inquiry: Readings in the Philosophy of Science*. New York & Oxford: Oxford University Press, 1999.

Pearcey, Nancy R. & Charles B. Thaxton. *The Soul of Science: Christian Faith and Natural Philosophy*. Wheaton, Illinois: Crossway Books, 1994.

Ratzsch, Del. *Science & Its Limits: The Natural Sciences in Christian Perspective*. Downers Grove, Illinois: InterVarsity Press, 2000.

2. Recommended (but not required) Textbooks

Beilby, James & David K. Clark. *Why Bother with Truth? Arriving at Knowledge in a Skeptical Society*. Norcross, Georgia: RZIM, 2000. Booklet.

Moreland, J. P. *Christianity and the Nature of Science: A Philosophical Investigation*. Grand Rapids, Michigan: Baker Book House, 1989.

3. Videos (in Providence library)

Galileo's Battle for the Heavens. Boston: WGBH Educational Foundation/ NOVA, 2006.

Newton's Dark Secrets. Boston: WGBH Educational Foundation/ NOVA, 2005.

Einstein's Big Idea. Boston: WGBH Educational Foundation/ NOVA, 2005.

4. Supplementary Readings

Some notes and articles will be handed out in class, or made available in the library, or distributed electronically (via student portal).

D. COURSE REQUIREMENTS

1. Listening to lectures and participation in class discussions. (See Course Policies below regarding attendance, lateness, and inappropriate in-class behaviour.)
2. Reading of assigned portions of the textbooks plus assigned supplementary readings.
3. Completion of each of the following:
 - (a) Video assignment. Students will view the following three DVDs plus write a 1.0 - 1.5 page (double-spaced) reflective overview of each: *Galileo's Battle for the Heavens*, *Newton's Dark Secrets*, and *Einstein's Big Idea*. These video assignments will provide the student with an introductory overview of (1) the history of science (over the past few centuries), (2) some major contemporary scientific theories, and (3) the relevance of philosophy for science. Due date: To be decided to some extent by the student, but the three papers must be completed no later than the end of reading week. Students are encouraged to begin these assignments right away. Additional details/expectations are forthcoming. (DVDs are on reserve in library.)
 - (b) Midterm exam. Date: February 25. The Midterm exam will involve true/false, short answer, and short essay questions. These questions will help students to develop as well as demonstrate their understanding of the course material.
 - (c) Book review-essay. The student will carefully read and review Pearcey & Thaxton's *Soul of Science*, critically interacting with the book's main theses and arguments. The review-essay will provide students with an introductory exploration of (1) the history of science, (2) some major contemporary scientific theories, and (3) the relevance of philosophy for science. Length of review-essay should be 5-6 pages (12-point font, double-spaced, one-inch margins). Due date: April 15 (in class, at beginning of class). *No late papers will be accepted* (except in cases of serious illness, extreme emergency, or death; see late assignment policy below). Students are encouraged to begin working on this project early in the semester. Additional details/expectations are forthcoming.
 - (d) Final exam. Date: During final exam week, April 19-23. Exact date, time, and location will be announced. The final exam will involve true/false, short answer, and short essay questions. These questions will help students to develop as well as demonstrate their understanding of the course material. This exam will cover, primarily, the topics discussed after the midterm.

E. GRADING SUMMARY

1. Grade Components

Students will choose one of the grading options listed below within 1 week of return of the graded midterm exam. Grading option A has an exam emphasis, whereas grading option B has an essay/review emphasis. If the student does not make his/her option known to instructor, then A is the default position.

Option	A	B
Video papers	10%	10%
Midterm exam	30%	25%
Essay-review	30%	40%
Final exam	<u>30%</u>	<u>25%</u>
Total	100%	100%

2. Grading Scale

Final course letter grades and Grade Point equivalents will be calculated using this grading scale:

<u>Quality</u>	<u>Letter</u>	<u>GP</u>	<u>%</u>	<u>Satisfactory/Average</u> <u>Adequate</u>	<u>C+</u>	<u>2.5</u>	<u>67-69</u>
Exceptional	A+	4.0	93-100		C	2.0	63-66
Excellent	A		85-92		C-		60-62
	A-		80-84	Marginal	D+	1.0	57-59
				Poor	D		53-56
Superior	B+	3.5	77-79		D-		50-52
Good	B	3.0	73-76				
	B-		70-72	Failure	F	0.0	<50

F. COURSE POLICIES

1. Class Attendance Policy

Attendance is expected as well as highly recommended. Your instructor's lectures will add clarity to the contents of the course textbook and supplementary readings, and your instructor's lectures will sometimes address topics not covered by the course textbook and supplementary readings. Also, much will be learned from class discussions.

Three absences are allowed (though not recommended): i.e., three 1.25-hour class meetings may be missed without penalty or documentation of excuse. Thereafter a 3 percent deduction from the final course grade is levied per missed class (unless the absence is excused for a good reason such as serious illness, extreme emergency, or death, verified by a reasonable authority such as a medical doctor; in these cases the student must fill out an Absence Form as well as submit appropriate documentation). (The Absence Form can be found at the end of the online version of this syllabus.)

Arriving to class late is a seriously frowned upon behaviour. If a student is late for class, he/she is advised to enter the class quietly from the rear of the room and be seated quietly at the rear of the room. At the end of the class the late student should advise the professor of the late student's attendance to avoid being recorded as absent (the late student should do this *after* the professor has finished talking with all other students about matters relating to course content).

Inappropriate behaviour while attending class (e.g., talking without instructor's approval) is unacceptable. Such behaviour may result in a 5 or more percent deduction from the final grade, depending upon the severity of the inappropriate behaviour (as judged by the instructor). By maintaining his/her registration in the class, the student agrees to abide by the following ground rules for discussion:

- Rule 1 – Show your hand when you wish to speak.
- Rule 2 – Speak only when asked to speak.
- Rule 3 – When you begin to speak state your name clearly.
- Rule 4 – One person speaks at a time.
- Rule 5 – Be quiet when another person is speaking.
- Rule 6 – Feel free to voice disagreement, but do so with gentleness and respect.
- Rule 7 – Try to make each other feel comfortable enough to make mistakes: i.e., don't scoff or laugh in a put-down sort of way. (Note: Good thinking requires practice, and practice usually involves the

making of mistakes—and the making of mistakes in a class discussion often leads to greater understanding for everyone.)

- Rule 8 – Stop the talking/discussion when your instructor says stop. (Your instructor has material that has to get covered during the course. If you are not satisfied with the outcome of a discussion or lecture, then feel free to make an appointment with your professor to continue the discussion.)

2. Information and Communication Technologies in Class

Student use of information and communication technologies (ICTs) such as laptop computers for purposes other than class note-taking is not allowed in the classroom, because students are expected to give their total attention to class activities. Use of cell-phones or ipods is never appropriate in the classroom, nor is the use of laptop computers to play games, chat with others, browse the internet, or engage material not related to the class. Such use of ICTs is distracting to classmates and disrespectful to the instructor. Unlike some other post-secondary institutions, Providence has not yet found it necessary to ban laptops from the classroom or prevent wireless internet access in classrooms. Only judicious use of laptops will keep it that way.

3. Late Assignment Policy

Late assignments will not be accepted (except in cases of serious illness, extreme emergency, or death, verified by a reasonable authority such as a medical doctor; in these cases the student must fill out a Late Assignment Submission Form as well as submit appropriate documentation). (The Late Assignment Form can be found at the end of the online version of this syllabus.)

4. Missed Exams

Students who miss exams other than a final exam are responsible to contact the professor within one week of the exam date if they still wish to write the exam. Permission to do so will be given to only those students who present evidence or reasonable grounds acceptable to the professor for having missed the exam (e.g., serious illness, extreme emergency, or death, verified by a reasonable authority such as a medical doctor; in these cases the student must fill out a Late Assignment Submission Form [see below in the online version of the syllabus, but this form will be adjusted for a *missed exam*] as well as submit appropriate documentation). The format of the exam will be at the discretion of the professor, with essay questions likely. Students who do not write an exam by at most two weeks after the exam date will receive a grade of zero for that component of the course. Exceptions to final exams must be processed by appeal to the Academic Committee. All requests to have a final exam rescheduled must be approved by the Academic Committee in accordance with the Early Leave Policy (available in the College Academic Calendar).

5. Plagiarism

Students are expected to demonstrate academic integrity in all its various forms and will be held accountable for doing so by the policy on Academic Dishonesty in the Student Handbook: http://www.providencecollege.ca/college/student_life/. One particularly problematic breach of academic integrity is plagiarism, which is stealing from the ideas and writings of another person and passing them off as one's own. For an elaboration of the nature, types, and prevention of plagiarism, see the documents "How to Cite Sources and Avoid Plagiarism" and "Students' Guide to Preventing and Avoiding Plagiarism" which are both available on the Providence College website: http://www.providencecollege.ca/college/library/information/use_a_style_guide_or_create_a_bibliography/.

G. COURSE OUTLINE

1. Daily Class Format

- (a) Welcome
- (b) Attendance
- (c) Misc. announcements/clarifications
- (d) Brief overview of day's lecture
- (e) Lecture and discussion

2. Course Structure (Topical and Chronological)

Note 1: This course is a work in progress, so time spent on some topics may be more or less extensive than originally planned. In other words, the outlined chronological structure may not be wholly accurate (though dates concerning video papers, midterm exam, book review-essay, and final exam are quite firm).

Note 2: Supplementary readings (hereafter SR) will be handed out in class, or made available in the library, or distributed electronically (via student portal, which should be checked often).

Note 3: Readings from the main textbooks are listed in the topically outlined structure only, so be sure to refer back and forth between the topical and chronological course outlines.

(a) Course Structure - *Topical*

Introductions

- To the course, each other, philosophy in general and philosophy of science in particular (SR; videos assignment)

Preliminary conceptual clarifications

- Contradiction (SR)
- Radical skepticism (SR)
- Theories of truth (SR)
- Logic/ argument (SR)

Science: What is it?

- Introductory remarks: discipline, aspects, philosophical assumptions (Ratzsch, ch. 1)
- The traditional conceptions of science
 - Introduction (Ratzsch, p. 17)
 - Baconian/inductivist conception (Ratzsch, pp. 18-20; Moreland, pp. 63-67)
 - Traditional/received conception (Ratzsch, pp. 21-27; Moreland, pp. 61-67, 73-76; Klee, pp. 163-180)
 - Positivism (Ratzsch, pp. 27-33; Moreland, pp. 73-76; Klee, pp. 10-15)
 - Problem of induction (Moreland, pp. 112-117)
 - Popper (Ratzsch, pp. 33-37; Moreland, pp. 84-86; Klee, 65-71)
- Kuhnian conception of science (Ratzsch, ch. 3; Moreland, pp. 195-202; Klee, pp. 199-201, 202-207, 208-215)
- Relativistic challenges to objectivity in observation (SR)
- Radical Kuhnian/extreme postmodern skepticism (Ratzsch, ch. 3; Klee, pp 228-235, 260-264, 265-273; SR)
- The contemporary situation (Ratzsch, ch. 4; Moreland, pp. 100-101)
- So, what is science? Testing a court's definition (Moreland, ch. 1; Ratzsch, ch. 1)

Limits of science

- Philosophical foundations of science (Moreland, pp. 108-133; Ratzsch, pp. 92-93; Ratzsch, ch. 9 [all, but especially pp. 136-140])
- Scientism (Moreland, pp. 103-108; SR)

Epistemic status of scientific theories

- Realism versus instrumentalism/anti-realism (Ratzsch, ch. 5, especially pp. 78-91; Moreland, pp. 139-160, 168-170, 171-194, especially, pp. 202-212; Klee, 313-316, 344-352)

Science and theology

- Some competing models (Ratzsch, ch. 10; Moreland, intro; SR)

Creationism/intelligent design

- Is it science? (Ratzsch, ch. 8; Moreland, pp. 213-234; Panel discussion/debate – “Intelligent Design Under Fire”; ID-related video; SR)

Concluding comments

- Virtues of a scientist/critical thinker (Ratzsch, pp. 160-170; Moreland, pp. 247-250; SR)

(a) Course Structure – *Chronological*

January 14

Introductions to course, to each other, to philosophy in general, to philosophy of science

January 18, 21

Preliminary conceptual clarifications (i.e., a look at the principle of non-contradiction, some radical skepticisms, the concept/s of truth, logic/argument)

January 25, 28

Preliminary conceptual clarifications, continued
Science: What is it? Intro
Traditional conceptions of science:
Baconian/inductivist

February 1, 4

Traditional conceptions of science:
Traditional/received
Missio Dei – February 4 – no class

February 8, 11

Traditional conceptions of science: Positivism,
Problem of Induction, Popper

February 15, 18

Louis Riel Day – February 15 – no class
Kuhnian conception of science

February 22, 25

Relativistic challenges to objectivity in
observation
Midterm exam – February 25

March 1-5

Reading days – no classes

March 8, 11

Radical Kuhnian/extreme postmodern
skepticism
Contemporary situation

*March 12 – last day for voluntary withdrawal
from course*

March 15, 18

So, what is science? Testing a court’s definition

March 22, 25

Philosophical foundations of science
Scientism

March 29, April 1

Realism vs. instrumentalism/anti-realism
Science and theology—competing models

April 5, 8

Creationism/intelligent design—Is it science?

April 12, 15

Creationism/intelligent design—Is it science?
Virtues of a scientist/critical thinker

April 19-23

Final exam – exact date, time, and location will
be announced

H. BIBLIOGRAPHY

Course bibliography can be seen on the online version of this syllabus.

H. BIBLIOGRAPHY

1. DICTIONARIES & ENCYCLOPEDIAS ON PHILOSOPHY

Books

- Audi, Robert, editor. *The Cambridge Dictionary of Philosophy*, 2nd edition. Cambridge: Cambridge University Press, 1999.
- Baggini, Julian & Peter S. Fosl. *The Philosopher's Toolkit: A Compendium of Philosophical Concepts and Methods*. Oxford: Blackwell, 2003.
- Blackburn, Simon. *The Oxford Dictionary of Philosophy*, 2nd edition. Oxford: Oxford University Press, 2005.
- Bunnin, Nicholas & Jiyuan Yu. *Blackwell Dictionary of Western Philosophy*. Malden, MA & Oxford: Wiley-Blackwell, 2009.
- Craig, Edward, editor. *The Shorter Routledge Encyclopedia of Philosophy*. London: Routledge, 2005.
- Flew, Antony, editor. *A Dictionary of Philosophy*. London: Macmillan/Pan Books, 1984.
- Honderich, Ted, editor. *The Oxford Companion to Philosophy*, 2nd edition. Oxford: Oxford University Press, 2005.

Internet

- A Dictionary of Philosophical Terms and Names* <http://www.philosophypages.com/dy/>
- EpistemeLinks* <http://www.epistemelinks.com>
- Internet Encyclopedia of Philosophy* <http://www.utm.edu/research/iep>
- Stanford Encyclopedia of Philosophy* <http://plato.stanford.edu/>

2. DICTIONARIES & ENCYCLOPEDIAS ON PHILOSOPHY OF SCIENCE

Books

- Campbell, Heidi A. & Heather Looy, editors. *A Science and Religion Primer*. Grand Rapids, Michigan: Baker Academic, 2009.
- Clayton, Philip, editor. *The Oxford Handbook of Religion and Science*. Oxford & New York: Oxford University Press, 2006.
- Curd, Martin & Stathis Psillos, editors. *The Routledge Companion to Philosophy of Science*. New York: Routledge, 2007.
- Machamer, Peter & Michael Silberstein, editors. *The Blackwell Guide to the Philosophy of Science*. Oxford: Blackwell, 2002.
- Newton-Smith, W. H., editor. *A Companion to the Philosophy of Science*. Malden, Massachusetts: Blackwell Publishers, 2000.
- Psillos, Stathis. *Philosophy of Science A-Z*. Edinburgh: Edinburgh University Press, 2007.
- Sarkar, Sahotra & Jessica Pfeifer, editors. *The Philosophy of Science: An Encyclopedia*. London, England: Routledge, 2005.

Internet

- Fact-Archive.com* (on philosophy of science) http://www.fact-archive.com/encyclopedia/Philosophy_of_science
- Galilean Library* (helpful overview) <http://www.galilean-library.org/manuscript.php?postid=43784>
- Galilean Library* (various articles on history and philosophy of science) <http://www.galilean-library.org/hps.php>
- Stanford Encyclopedia of Philosophy* (again) <http://plato.stanford.edu/>

3. ON LOGIC, ARGUMENT, REASONING

- Baillargeon, Normand. *A Short Course in Intellectual Self-Defense*. New York: Seven Stories Press, 2007. (See especially subsection 4.2.2 “Three Important Foundations of Empirical and Experimental Science”, pages 245-250.)
- Damer, T. Edward. *Attacking Faulty Reasoning*, 6th edition. Belmont, California: Wadsworth/Thomson, 2009.
- Govier, Trudy. *A Practical Study of Argument*, 7th edition. Belmont, California: Wadsworth/Cengage, 2010.
- Groarke, Leo A. & Christopher W. Tindale. *Good Reasoning Matters!* 4th edition. Oxford & New York: Oxford University Press, 2008.
- Hacking, Ian. *An Introduction to Probability and Inductive Logic*. Cambridge: Cambridge University Press, 2001.
- Huff, Darrell. *How to Lie with Statistics*. New York: W. W. Norton & Company, Inc., 1954. Reprint, 1993.
- Johnson, R. H. & J. A. Blair. *Logical Self-Defense*, 3rd edition. Toronto: McGraw-Hill Ryerson, 1993.
- Moore, Brooke Noel & Richard Parker. *Critical Thinking*, 8th edition. New York: McGraw-Hill, 2006.
- Moreland, J. P. *Love Your God With All Your Mind: The Role of Reason in the Life of the Soul*. Colorado Springs, Colorado: NavPress, 1997. (Chapter 5)
- Philips, Michael. *The Undercover Philosopher: A Guide to Detecting Shams, Lies, and Delusions*. Oxford: Oneworld, 2008.
- Salmon, Wesley C. *Logic*, 3rd edition. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1984.
- Warburton, Nigel. *Thinking from A to Z*, 3rd edition. London & New York: Routledge, 2007.

4. ON TRUTH Readings marked with * are highly recommended; check annotations—especially Jaki’s *Means to Message*.

- * Beilby, James & David K. Clark. *Why Bother with Truth? Arriving at Knowledge in a Skeptical Society*. Norcross, Georgia: RZIM, 2000. (Booklet; see especially chapters 1-6.)
- Blackburn, Simon. *Truth*. Oxford & New York: Oxford University Press, 2005.
- Boghossian, Paul. *Fear of Knowledge: Against Relativism and Constructivism*. Oxford: Clarendon Press, 2006. (An important critique of social constructivism.)
- * Creel, Richard E. *Thinking Philosophically*. Malden & Oxford: Blackwell Publishing, 2001. (Chapter 10, “What is Truth?”)
- Frankfurt, Harry G. *On Truth*. New York: Alfred A. Knopf, 2006. (This is a very insightful little treatise on truth written by the author of another insightful little treatise provocatively titled *On Bullshit*.)
- * Groothuis, Douglas. *Truth Decay: Defending Christianity Against the Challenge of Postmodernism*. Downers Grove, Illinois: InterVarsity Press, 2000. (Chapter 4, “The Truth about Truth,” is very helpful.)
- Hiebert, Paul G. *Missiological Implications of Epistemological Shifts: Affirming Truth in a Modern/Postmodern World*. Harrisburg, Pennsylvania: Trinity Press International, 1999. (Hiebert discusses the position known as “critical realism,” which, I believe, is the way to go.)
- * Jaki, Stanley L. *Means to Message: A Treatise on Truth*. Grand Rapids, Michigan: Eerdmans, 1999. (Jaki’s thesis is simple but deeply profound: any philosophy that is written in a book must account for [1] the fact—the reality—of the book in which the philosophy is written and [2] the fact—the reality—that the contents of the book can be accurately understood by its readers.)
- Köstenberger, Andreas, editor. *Whatever Happened to Truth?* Wheaton, Illinois: Crossway Books, 2005. (Chapters by J. P. Moreland and Kevin J. Vanhoozer are recommended.)

- Luntley, Michael. *Reason, Truth, and Self: The Postmodern Reconditioned*. London & New York: Routledge, 1995. (Luntley's concept of "simple truth" is especially helpful, giving all of us an objective handle on a common reality; see chapter 5.)
- McCallum, Dennis, editor. *The Death of Truth: What's Wrong with Multiculturalism, the Rejection of Reason, and the New Postmodern Diversity*. Minneapolis, Minnesota: Bethany House Publishers, 1996. (This is a helpful book dealing with the excesses of early postmodernist thought. The contributions by Jim Leffel [chapters 3 and 4] and Dennis McCallum [chapter 14] are very good. The book is also helpful in its various chapters that look at the postmodern impact on literature, education, history, science, psychotherapy, law, and religion.)
- * Moreland, J. P. & William Lane Craig. "Theories of Truth and Postmodernism." In *Philosophical Foundations for a Christian Worldview*, 130-153. Downers Grove, Illinois: InterVarsity Press, 2003.
- Nagel, Thomas. *The Last Word*. Oxford & New York: Oxford University Press, 1997.
- Penner, Myron B., editor. *Christianity and the Postmodern Turn: Six Views*. Grand Rapids, Michigan: Brazos Press, 2005. (I recommend the articles and response essays by R. Scott Smith and Kevin J. Vanhoozer.)
- Rorty, Richard & Pascal Engel. *What's the Use of Truth?* New York: Columbia University Press, 2007.
- Russell, Bertrand. *The Problems of Philosophy*. Oxford: Oxford University Press, 1967. (See chapter 12, "Truth and Falsehood.")
- Smith, R. Scott. "'Emergents,' Evangelicals, and the Importance of Truth: Some Philosophical and Spiritual Lessons." In *Evangelicals Engaging Emergent: A Discussion of the Emergent Church Movement*, edited by William D. Henard & Adam W. Greenway, 129-156. Nashville: B&H Academic, 2009. (See especially the section "Assessing the Emergent View of Truth Philosophically" on pages 140-144.)

5. INTRODUCTIONS TO PHILOSOPHY

- Cowan, Steven B. & James S. Spiegel. *The Love of Wisdom: A Christian Introduction to Philosophy*. Nashville: B&H Academic, 2009.
- DeWeese, Garrett & J.P. Moreland. *Philosophy Made Slightly Less Difficult*. Downers Grove, Illinois: InterVarsity Press, 2005.
- Law, Stephen. *Philosophy*. Eyewitness Companions. London & New York: DK Publishing, 2007.
- Morris, Tom. *Philosophy For Dummies*. Foster City, California: IDG Books Worldwide, Inc., 1999.
- Pojman, Louis P. *Philosophy: The Pursuit of Wisdom*, 5th edition. Belmont, California: Thomson/ Wadsworth, 2006.
- Pojman, Louis P. *Philosophical Traditions: A Text with Readings*, 2nd edition. Belmont, California: Thomson/ Wadsworth, 2006.

6. CONCERNING SCIENCE & PHILOSOPHY

- Ayer, A. J. *Language, Truth and Logic*. New York: Dover, 1996.
- Balashov, Yuri & Alex Rosenberg, editors. *Philosophy of Science*. London & New York: Routledge, 2002.
- Behe, Michael J. *Darwin's Black Box: The Biochemical Challenge to Evolution*, 10th Anniversary Edition. New York: The Free Press, 2006.
- Behe, Michael J., William A. Dembski, & Stephen C. Meyer. *Science and Evidence for Design in the Universe*. San Francisco: Ignatius Press, 2000.
- Boersema, David. *Philosophy of Science: Text with Readings*. New York: Peason/Prentice Hall, 2009.

- Campbell, John Angus & Stephen C. Meyer, editors. *Darwinism, Design, and Public Education*. East Lansing, Michigan: Michigan State University Press, 2003.
- Carlson, Richard F., editor. *Science & Christianity: Four Views*. Downers Grove, Illinois: InterVarsity Press, 2000.
- Chalmers, A. F. *What is this thing called Science?* 2nd edition. Indianapolis & Cambridge: Hackett Publishing Company, 1982.
- Collins, Francis S. *The Language of God: A Scientist Presents Evidence for Belief*. New York: Free Press, 2006.
- Comfort, Nathaniel C., editor. *The Panda's Black Box: Opening the Intelligent Design Controversy*. Baltimore: Johns Hopkins University Press, 2007.
- Copan, Paul & William Lane Craig. *Creation out of Nothing: A Biblical, Philosophical, and Scientific Exploration*. Grand Rapids, Michigan: Baker Academic, 2004.
- Couvalis, George. *The Philosophy of Science: Science and Objectivity*. London, England: Sage Publications, 1997.
- Coyne, Jerry A. "God in the Details." *Nature* 383 (1996): 227-228.
- Coyne, Jerry A. *Why Evolution is True*. New York: Viking, 2009.
- Craig, William Lane. *Reasonable Faith: Christian Truth and Apologetics*, 3rd edition. Wheaton, Illinois: Crossway, 2008.
- Craig, William Lane & Quentin Smith. *Theism, Atheism, and Big Bang Cosmology*. Oxford: Clarendon Press, 1993.
- Curd, Martin & J. A. Cover. *Philosophy of Science: The Central Issues*. New York: W. W. Norton & Company, 1998.
- Dawkins, Richard. *Climbing Mount Improbable*. New York: W. W. Norton & Company, Inc., 1996.
- Dawkins, Richard. *The God Delusion*. Boston & New York: Houghton Mifflin Company, 2006.
- Dembski, William A. *Intelligent Design: The Bridge Between Science & Theology*. Downers Grove, Illinois: IVP, 1999.
- Dembski, William A. *The Design Revolution: Answering the Toughest Questions about Intelligent Design*. Downers Grove, Illinois: InterVarsity Press, 2004.
- Dembski, William A., editor. *Darwin's Nemesis: Phillip Johnson and the Intelligent Design Movement*. Downers Grove, Illinois: InterVarsity Press, 2006.
- Dembski, William A. & James M. Kushiner, editors. *Signs of Intelligence: Understanding Intelligent Design*. Grand Rapids, Michigan: Brazos Press, 2001.
- Dembski, William A. & Michael Ruse, editors. *Debating Design: From Darwin to DNA*. Cambridge: Cambridge University Press, 2004.
- Forrest, Barbara & Paul R. Gross. *Creationism's Trojan Horse — The Wedge of Intelligent Design*, updated edition. Oxford: Oxford University Press, 2004, 2007.
- Fowler, Thomas B. & Daniel Kuebler. *The Evolution Controversy: A Survey of Competing Theories*. Grand Rapids, Michigan: Baker Academic, 2007.
- French, Steven. *Science: Key Concepts in Philosophy*. London & New York: Continuum, 2007.
- Giere, Ronald N. *Understanding Scientific Reasoning*, 2nd edition. New York: Holt, Rinehart and Winston, 1984.
- Giere, Ronald N. *Science Without Laws*. Chicago & London: University of Chicago Press, 1999.
- Godfrey-Smith, Peter. *Theory and Reality: An Introduction to the Philosophy of Science*. Chicago: University of Chicago Press, 2003.

- Grimm, Patrick, editor. *Philosophy of Science and the Occult*. Albany, New York: State University of New York Press, 1982.
- Hacking, Ian. *Representing and Intervening: Introductory Topics in the Philosophy of Natural Science*. Cambridge: Cambridge University Press, 1983.
- Hacking, Ian. *The Social Construction of What?* Cambridge, Massachusetts & London, England: Harvard University Press, 1999.
- Hempel, Carl G. *Philosophy of Natural Science*. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1966.
- Hooykaas, Rejer. *Religion and the Rise of Modern Science*. Edinburgh & London: Scottish Academic Press, 1972.
- Hummel, Charles E. *The Galileo Connection: Resolving Conflicts between Science & the Bible*. Downers Grove, Illinois: InterVarsity Press, 1986.
- Hung, Edwin. *The Nature of Science: Problems and Perspectives*. Belmont, California: Wadsworth Publishing Company, 1997.
- Isaak, Mark. *The Counter-Creationism Handbook*. Berkeley: University of California Press, 2007.
- Jaki, Stanley L. *The Savior of Science*. Grand Rapids, Michigan/ Cambridge, U.K.: Eerdmans, 2000.
- Jastrow, Robert. *God and the Astronomers*, 2nd edition. New York: W. W. Norton, 1992.
- Johnson, Phillip E. *Darwin on Trial*, 2nd edition. Downers Grove, Illinois: InterVarsity Press, 1993.
- Johnson, Phillip E. *Defeating Darwinism by Opening Minds*. Downers Grove, Illinois: InterVarsity Press, 1997.
- Kitcher, Philip. *Abusing Science: The Case Against Creationism*. Cambridge, Massachusetts: The MIT Press, 1982.
- Kitcher, Philip. *The Advancement of Science: Science without Legend, Objectivity without Illusions*. New York & Oxford: Oxford University Press, 1993.
- Kosso, Peter. *Reading the Book of Nature: An Introduction to the Philosophy of Science*. Cambridge: Cambridge University Press, 1992.
- Kuhn, Thomas S. *The Copernican Revolution: Planetary Astronomy in the Development of Western Thought*. Cambridge, Massachusetts: Harvard University Press, 1957.
- Kuhn, Thomas S. *The Structure of Scientific Revolutions*. Chicago: The University of Chicago Press, 1962, 1970.
- Ladyman, James. *Understanding Philosophy of Science*. London & New York: Routledge, 2002.
- Lakatos, I. & A. Musgrave, editors. *Criticism and the Growth of Knowledge*. Cambridge: Cambridge University Press, 1970.
- Langone, John, Bruce Stutz & Andrea Gianopolulos. *Theories for Everything: An Illustrated History of Science from the Invention of Numbers to String Theory*. Washington, D.C.: National Geographic, 2006.
- Laudan, Larry. "The Demise of the Demarcation Problem." In *But Is It Science? The Philosophical Question in the Creation/ Evolution Controversy*, edited by Michael Ruse, 337-350. Amherst, New York: Prometheus Books, 1996.
- Laudan, Larry. "Science at the Bar—Causes for Concern." In *But Is It Science? The Philosophical Question in the Creation/ Evolution Controversy*, edited by Michael Ruse, 351-355. Amherst, New York: Prometheus Books, 1996.
- Laudan, Larry. *Beyond Positivism and Relativism: Theory, Method, and Evidence*. Boulder, Colorado: Westview Press, 1996.
- Leffel, Jim. "Postmodernism and 'The Myth of Progress': Two Visions." In *The Death of Truth: What's Wrong with Multiculturalism, the Rejection of Reason, and the New Postmodern Diversity*, edited by Dennis McCallum, 43-57. Minneapolis, Minnesota: Bethany House Publishers, 1996.

- Leslie, John. *Universes*. London & New York: Routledge, 1989.
- Leslie, John, editor. *Modern Cosmology & Philosophy*. Amherst, New York: Prometheus, 1998.
- Lindberg, David C. *The Beginnings of Western Science: The European Scientific Tradition in Philosophical, Religious, and Institutional Context, 600 B.C. to A.D. 1450*. Chicago & London: University of Chicago Press, 1992.
- Lindberg, David C. & Ronald Numbers, editors. *When Science and Christianity Meet*. Chicago & London: University of Chicago Press, 2003.
- Lipton, Peter. *Inference to the Best Explanation*, 2nd edition. London & New York: Routledge, 2004.
- Losee, John. *A Historical Introduction to the Philosophy of Science*, 4th edition. Oxford: Oxford University Press, 2001.
- Luley, Scott B., Paul Copan & Stan W. Wallace, editors. *Science: Christian Perspectives for the New Millennium*. Addison, Texas & Norcross, Georgia: Christian Leadership Ministries & Ravi Zacharias International Ministries, 2003.
- Manson, Neil A., editor. *God and Design: The Teleological Argument & Modern Science*. London: Routledge, 2003.
- Mayhall, C. Wayne. *On Logical Positivism*. Toronto: Thomson/Wadsworth, 2003.
- McGrath, Alister E. *Science & Religion: An Introduction*. Oxford: Blackwell Publishers, 1999.
- McGrew, Timothy, Marc Alspecter-Kelly & Fritz Allhoff, editors. *Philosophy of Science: An Historical Anthology*. Malden, Massachusetts: Wiley-Blackwell, 2009.
- Meyer, Stephen C. "Of Clues and Causes: A Methodological Interpretation of Origin of Life Studies." Ph.D. dissertation, University of Cambridge, 1990.
- Meyer, Stephen C. *Signature in the Cell: DNA and the Evidence for Intelligent Design*. San Francisco: HarperOne, 2009.
- Meynell, Hugo. "Truth, Witchcraft and Professor Winch." *The Heythrop Journal* 13 (April 1972): 162-172.
- Meynell, Hugo. "Science, the Truth, and Thomas Kuhn." *Mind* 84 (January 1975).
- Moreland, J. P. *Christianity and the Nature of Science: A Philosophical Investigation*. Grand Rapids, Michigan: Baker, 1989.
- Moreland, J. P., editor. *The Creation Hypothesis: Scientific Evidence for an Intelligent Designer*. Downers Grove, Illinois: InterVarsity Press, 1994.
- Moreland, J.P. & John Mark Reynolds, editors. *Three Views on Creation & Evolution*. Grand Rapids: Zondervan, 1999.
- Newton-Smith, W. H. *The Rationality of Science*. London: Routledge and Kegan Paul Inc., 1981.
- Newton-Smith, William, editor. *A Companion to the Philosophy of Science*. Malden, Massachusetts: Blackwell Publishers, 2000.
- Niiniluoto, Ilkka. *Critical Scientific Realism*. Oxford: Oxford University Press, 2002.
- Numbers, Ronald L. *The Creationists: From Scientific Creationism to Intelligent Design*, expanded edition. Cambridge, Massachusetts, and London, England: Harvard University Press, 2006.
- Okasha, Samir. *Philosophy of Science: A Very Short Introduction*. Oxford & New York: Oxford University Press, 2002.
- Parson, Keith. *Copernican Questions: A Concise Invitation to the Philosophy of Science*. Toronto: McGraw-Hill, 2006.
- Pearcey, Nancy R. & Charles B. Thaxton. *The Soul of Science: Christian Faith & Natural Philosophy*. Wheaton, Illinois: Crossway, 1994.
- Pennock, Robert T. *Tower of Babel: The Evidence Against the New Creationism*. Cambridge, Massachusetts: MIT Press, 1999.

- Polkinghorne, John. *Serious Talk: Science & Religion in Dialogue*. Valley Forge, Pennsylvania: Trinity Press International, 1995.
- Polkinghorne, John. *Beyond Science: The Wider Human Context*. Cambridge: Cambridge University Press, 1996.
- Poythress, Vern S. *Redeeming Science: A God-Centered Approach*. Wheaton, Illinois: Crossway Books, 2006.
- Psillos, Stathis. *Scientific Realism: How Science Tracks Truth*. London & New York: Routledge, 1999.
- Psillos, Stathis. *Causation & Explanation*. Montreal & Kingston: McGill-Queen's University Press, 2002.
- Rae, Alastair. *Quantum Physics: Illusion or Reality?* Cambridge: Cambridge University Press, 1986; Canto edition, 1994.
- Ratzsch, Del. *Science & Its Limits: The Natural Sciences in Christian Perspective*. Downers Grove, Illinois: IVP, 2000.
- Ratzsch, Del. *Nature, Design, and Science: The Status of Design in Natural Science*. New York: SUNY Press, 2001.
- Rosenberg, Alex. *Philosophy of Science: A Contemporary Introduction*. London & New York: Routledge, 2000.
- Ruse, Michael, editor. *But Is It Science? The Philosophical Question in the Creation/Evolution Controversy*. Amherst, New York: Prometheus Books, 1996.
- Ruse, Michael, editor. *Philosophy of Biology*. Amherst, New York: Prometheus Books, 1998.
- Sarkar, Sahotra. *Doubting Darwin? Creationist Designs on Evolution*. Oxford: Blackwell, 2007.
- Schaefer, Henry F., III. *Science and Christianity: Conflict or Coherence?* Athens & Watkinsville, Georgia: The University of Georgia & The Apollos Trust, 2003.
- Scott, Eugenie C. *Evolution vs. Creationism: An Introduction*. Berkeley: University of California Press, 2005.
- Smolin, Lee. *The Trouble with Physics: The Rise of String Theory, the Fall of a Science, and What Comes Next*. Boston & New York: Houghton Mifflin, 2007.
- Snoke, David W. *Natural Philosophy: A Survey of Physics and Western Thought*. Colorado Springs, Colorado: ARN, 2003.
- Sober, Elliot. *Philosophy of Biology*, 2nd edition. Boulder, Colorado: Westview Press, 2000.
- Sokal, Alan & Jean Bricmont. *Fashionable Nonsense: Postmodern Intellectuals' Abuse of Science*. New York: Picador, 1998.
- Stewart, Robert B., editor. *Intelligent Design: William A. Dembski & Michael Ruse in Dialogue*. Minneapolis: Fortress, 2007.
- Tauber, Alfred I. *Science and the Quest for Meaning*. Waco, Texas: Baylor University Press, 2009.
- Thagard, Paul. "The Best Explanation: Criteria for Theory Choice." *The Journal of Philosophy* 75 (1978): 76-92.
- Wells, Jonathan. *The Politically Incorrect Guide to Darwinism and Intelligent Design*. Washington: Regnery Publishing, 2006.
- Wilson, E. O. *Consilience: The Unity of Knowledge*. New York: Alfred A. Knopf, Inc.: 1998.
- Whitehead, Alfred North. *Science and the Modern World*. New York: The Free Press, 1925.
- Woodward, Thomas. *Darwin Strikes Back: Defending the Science of Intelligent Design*. Grand Rapids, Michigan: Bakers, 2006.
- Young, Matt & Taner Edis, editors. *Why Intelligent Design Fails: A Scientific Critique of the New Creationism*. New Brunswick, New Jersey, & London: Rutgers University Press, 2004.

**Late Assignment Submission Form
Providence College**

Student Information

Name: _____

Student number: _____

Course Number: _____

Course Title: _____

Instructor: _____

Assignment information

Title of Assignment: _____

Assignment Due Date: _____

Assignment Submission Date: _____

Reason for Lateness: *Please provide an explanation for the lateness of the assignment.*

N.B. Please provide all relevant documentation (e.g. Doctor's note)

Student's Signature: _____

Instructor's Use Only

Date Assignment Received: _____

Late Penalty Waived / Assessed

Late Penalty: _____%

Faculty Signature: _____

