



STCE4005-1 AstroTheology and AstroEthics

GTU / Fall 2018

Fridays, 2:10-5:00pm. Hedco

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COURSE DESCRIPTION:

This course will focus on the implications of Big Bang cosmology, evolutionary biology and astrobiology/extraterrestrial intelligent life for Christian theology and ethics. Scientific topics include Big Bang cosmology, the discovery of habitable exoplanets, evolutionary biology, human origins, astrobiology and the search for extraterrestrial life. Theological and ethical topics include God, creation, Christology, eschatology and astroethics. The course counts in the Theology and Science concentration within the Department of Theology and Ethics.

Advanced M.Div. and other masters' level students are invited, especially with background in the basics of theology. A science background is not required. Doctoral students may upgrade from 4000 to 5000 level and write in their field of focus. On-line students will follow the same sequence of assignments but with threaded forum discussions rather than in-person seminar discussion.

STUDENT LEARNING OBJECTIVES (SLOs)

At the conclusion of this semester's work, each student should be able to...

1. grasp the central foci of astrobiology and Big Bang cosmology;
2. list salient points of contact between today's space sciences and religion;
3. articulate working definitions of *Astrotheology* and *Astroethics*;
4. demonstrate scholarly capacity to engage in dialogue if not interaction between one or more concerns raised by the space sciences and either theology and/or ethics.

ASSESSMENT

To assess whether the SLOs have been achieved, each student will be evaluated on their verbal or written ability...

1. to articulate what is important in Theology & Science;
2. to sustain a discussion on science, religion, and ethics;
3. to proffer one or more constructive scholarly goals;
4. to state clearly how astrotheology or astroethics or both should handle one significant issue raised by the space sciences.

COURSE REQUIREMENTS

Each on-campus student will be responsible for...

1. attending every class meeting (please report absences in advance)
3. reading all required assignments and some selected recommendations
3. leading one, two, or more class discussions on reading
4. leading one class discussion on the student's own research
5. writing a term paper

Each on-line student will be responsible for...

1. reading all required assignments and some selected recommendations
2. interacting regularly with the faculty and other students on line
3. participating in threaded on-line forums
4. initiating one or more on-line forums
5. writing a term paper

PRIMARY BIBLIOGRAPHY (required)

- Astro *Astrotheology: Science and Theology Meet Extraterrestrial Life*. Edited by Ted Peters, Martinez Hewlett, Joshua Moritz, and Robert John Russell. Eugene OR: Cascade Books, 2018.
ISBN
- CC *Cosmic Commons: Spirit, Science, and Space*, by John Hart.
Eugene OR: Cascade Books, 2013. ISBN13: 978-1-61097-318-2 \$49.
- REL *Religions and Extraterrestrial Life*, by David A. Weintraub.
Heidelberg: Springer, 2014. ISBN 978-3-319-05055-3 \$28.31;
ISBN 978-3-319-05056-0 (eBk) \$9.31.

RECOMMENDED BIBLIOGRAPHY (other materials on calendar)

Each student should read completely one of the following. More is okay.

- DE *The Drake Equation*. Edited by Douglas A. Vakoch and Matthew F. Dowd. Cambridge UK: Cambridge University Press, 2015.
ISBN 978-1-107-07365-4
- ELD *The Extraterrestrial Life Debate: Antiquity to 1915*. Edited by Michael J. Crowe.
Notre Dame: University of Notre Dame Press, 2008. ISBN 10: 0-268-02368-9.
- ES *The Eerie Silence*, by Paul Davies. Boston and New York: Houghton, Mifflin, Harcourt, 2010. ISBN 978-0-547-13324-9.
- ESE *The Ethics of Space Exploration*. Edited by James S.J. Schwartz and Tony Milligan. Heidelberg: Springer, 2016. ISBN 978-3-319-39825-3 \$99.99 (\$49.99 used).
- LOW *Life on Other Worlds: The 20th Century Extraterrestrial Life Debate*, by Steven J. Dick. Cambridge UK: Cambridge University Press, 1998.
ISBN 0-521-79912-0
- SRSEI *Science, Religion, and the Search for Extraterrestrial Intelligence*, by David Wilkinson. Oxford: Oxford University Press, 2013. ISBN978-0-19-968020-7.

TERM PAPER

Each student enrolled for course credit--on campus or on line--will be required to write a term paper of approximately 4000 words and provide a summary for the class. The term paper form will follow that of Turabian or *Chicago Manual of Style*, employing footnotes at the bottom of the page. If the footnotes are complete, no additional bibliography is required.

You the student may elect any topic you deem important for your growth either as a theologian, pastor, or religious studies scholar. Doctoral students may write a paper that contributes to their degree requirements. It is best for you to clear the topic with the teaching faculty prior to commencing writing. On or prior to the due date, please provide both professors--Russell and Peters--with an eCopy in Microsoft Word via email. No need to hand in a hard copy.

How might you select a topic? Here is one simple yet valuable term paper type, namely, the *single figure paper*. The subject matter of the term paper may limit itself to an exposition of a significant figure in astrotheology or astrotethics such as David Wilkinson, Paul Davies, or John Hart. Referencing more than one work by the selected author will be important here, because your task is to explicate what this author thinks. Look at the author's books and articles as well as secondary materials which may criticize the author. Your paper will provide an exposition, critical analysis, projected implications, and your own constructive proposal.

A second type of term paper would begin with an issue arising from the space sciences and then render both theological and ethical resources to tease out, explicate, analyze, and perhaps reformulate the issue. Provide your own final assessment and recommendation for resolving the issue. Among ethical issues already arising, you might select planetary protection or space junk or surveillance. Among scientific issues prompting theological input you might review forecasted religious reactions to confirmation of contact with ETI.

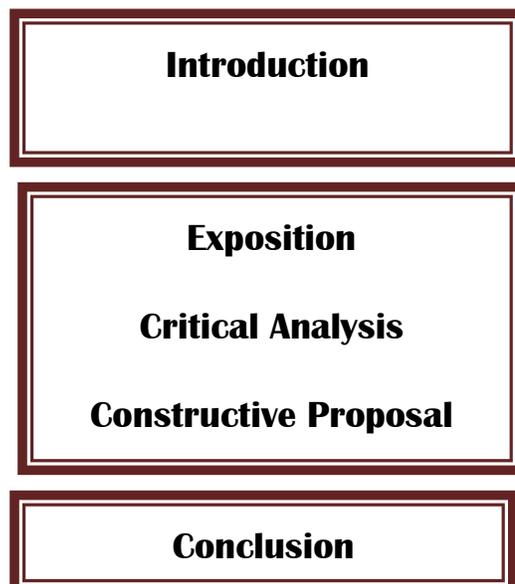
A third type of term paper would begin with an issue arising from theology in light of scientific knowledge or lack of knowledge; then tease out, explicate, analyze, and perhaps reformulate the issue. Provide your own final assessment and recommendation for resolving the issue. Among ethical issues the need for confronting space ethics from the perspective of a single just, sustainable, and participatory global society might be worth addressing. Among theological issues, you might select the question: one incarnation or many?

Doctoral students may wish to select a topic which will contribute directly or indirectly to their larger plan of study.

Whether you follow the first, second, or third term paper exemplar, announce in both your introduction and constructive section which model for relating science to theology you yourself prefer to work within. You may wish to select one of Ian Barbour's four models: (1) conflict, (2) independence, (3) dialogue, or (4) integration. Or, you may wish to select one of Ted Peters' ten models: (1) scientism; (2) scientific imperialism; (3) theological authoritarianism; and (4) the evolution controversy. Six additional preferred models assume a truce or even more, a partnership: (5) the Two Books; (6) the Two Languages; (7) ethical alliance; (8) dialogue accompanied by creative mutual interaction; (9) naturalism; and (10) theology of nature. Explain to the reader how appeal to your selected model illuminates the subject matter of your paper.

A well written term paper is like a sandwich. The introduction and conclusion are like slices of bread. Sandwiched between them is your exposition, critical analysis, and constructive proposal.

In your introduction please tell the reader what you will do; and in your conclusion remind the reader of what you have just done. Include a thesis, a single statement which makes the most important point in the paper. Repeat the thesis frequently, perhaps in each transition to a new section. Use your exposition, critical analysis, and constructive proposal to illustrate or support the thesis.



DISCUSSION LEADERSHIP.

Every on-campus student will lead two, three, or more classroom discussions. One or more discussions of common reading. One oral book review. One summary of the term paper.

Every on-line student will lead two or more forum discussions. Basically, the on-line student will provide in written form what the on-campus student provides in oral form. Sign up for those class sessions and topics which you prefer.

FINAL COURSE GRADE

Each on-campus student should attend all class meetings. If an absence is unavoidable, please inform the professor in advance. Thank you.

The final grade for students taking the course for full 3.0 credit will be determined by the following proportions:

Discussion leadership	20%
Classroom participation	10%
<u>Term paper</u>	<u>70%</u>
Total	100%

The final grade for each on-line student taking the course for 3.0 credits will be determined by the following proportions:

Forum leadership	20%
Forum participation	10%
<u>Term paper</u>	<u>70%</u>
Total	100%

Each AUDIT only student is welcome to attend any regular class meeting. Contributions to class discussion are welcome during break time or following

class. During class, auditors need to defer conversation time to credit students. Audit only students are not responsible for the term paper or other assignments.

CREDIT HOURS

This is a 3 Credit Hour course. The U.S. federal government which sets criteria for financial aid also defines a credit hour. *One Credit Hour* = one hour of classroom or direct faculty instruction plus a minimum of two hours of out-of-class student study each week for approximately 15 weeks for one semester or trimester, or ten to twelve weeks for one quarter hour of credit, or the equivalent of work over a different amount of time; at least an equivalent amount of work for other activities as established by the institution, including laboratory work, internships, practical, studio work, and other academic work leading to the award of credit hours.

We GTU faculty treat this definition as a minimum requirement. Please expect to invest yourself in significant amounts of time outside of class for reading, writing, and engaging in critical conversation.

PLAGIARISM

Plagiarism is the presentation of another's ideas, methods, research, or words without proper acknowledgement. It runs the gamut from failing to cite a reference (sloppy scholarship), to passing off another's work as one's own. It includes close paraphrasing as well as lifting of entire lines nearly verbatim without acknowledgement. As the effects of the plagiarism will be the same regardless of intent, intent will not be construed as essential to the act, although it may be considered in determining whether the charge of plagiarism should be pursued or what the penalty may be. For general requirements for proper acknowledgement in written work, see the most current edition of Kate Turabian, *Manual for the Writers of Term Papers, Theses, and Dissertations* and *The Chicago Manual of Style*.

ARRANGEMENTS IN CASES OF DOCUMENTED DISABILITY

If you will need special arrangements for meeting course requirements for reasons of documented disability, please speak to one of the instructors very early in the

term so that appropriate arrangements can be made. A description of the GTU policy regarding accommodation for differently abled students is online at: <http://gtu.edu/admissions/life-at-gtu/students-with-disabilities>

HONOR CODE

Students in all courses and phases of the Doctoral Program are subject to the GTU Honor Code, described on p. 15 of the on-line Student Handbook. Please note: “Documented evidence that a student has violated the honor code may result in immediate expulsion from the program.”

OTHER GTU POLICIES

Students and faculty in required Doctoral Seminars are also subject to GTU Institutional Policies, detailed on pp. 54 ff. in the on-line Student Handbook, including: Non-discrimination, AIDS non-discrimination, and Drug Free Environment (52), Inclusive Language (54), Plagiarism (55 ff.), Exceptions and Accommodations (63 ff.), and Sexual Misconduct (65 ff.).



CALENDAR 2018

1st Week, Friday, September 7, 2018

Introduction to the course

Overview lectures by Bob and Ted

Astro Davies, Foreword

Russell, Preface

1. Peters, "Introducing Astrotheology

Wilkinson, "Why we should take SETI seriously"

2nd Week, Sept. 14

Bob lectures on the science of cosmology, Davies, & Drake Equation

REQUIRED READING

REL Chapters 1,2,3

DE Drake, "Foreword"

Astro 2. Peters, The Tasks of Astrotheology

8. Manning, Yes, We'll Meet Them: The Drake Equation

4. Russell on Discovering ETI

RECOMMENDED RESOURCES

ELD Crowe, chapters 1-6

ES Davies, entire book

Olli-Pekka Vainio, *Cosmology in Theological Perspective*.

Grand Rapids MI: Baker, 2018.

Selected blogs at METI: <http://meti.org>

3th Week, Sept. 21

Guest Presenter: Margaret Race, SETI

REQUIRED RESOURCES

Astro 6. Race on Searches for ET within the Solar System

21. McKay on Mars

22. Peters on Astroethics and Microbial Life

CC Hart, pp.1-88.

VIDEOS

Margaret Race on UN Space Policy & the "Race for Space"

<https://www.youtube.com/watch?v=exsDJJSnEpA>

Margaret Race on Planetary Protection

<https://www.youtube.com/watch?v=Dsb4L40XA1w>

RECOMMENDED RESOURCES

ELD Crowe, chapters 7-11

DE Dick, "Introduction"

additional selections

Steven Dick, "Astroethics and Cosmocentrism" *Scientific American*

Octavio Chon Torres on "Astrobioethics" *International Journal of Astrobiology*

Ted Peters, "Stretching Twelve AstroEthical Issues Within Our Solar Ghetto to

Address Warfare in the Milky Way Metropolis." METI (2017).

<http://meti.org/blog/stretching-twelve-astroethical-issues-within-our-solar-ghetto-address-warfare-milky-way>

Peters, "Mars Life"

<http://tedstimelytake.com/science-n-faith/>

4th Week, Sept. 28

Ted lectures on Astroethics

REQUIRED READING

REL Chapters 4,5

Astro 22. Peters, Astroethics and Microbial Life in the Solar Ghetto

24. Peters, Concluding Scientific Prescript

Arnould, "A Brief History of Space Ethics"

RECOMMENDED RESOURCES

ELD Crowe, chapters 12-14

Astro 5. Hewlett, The Copernican Revolution that Never Was

VIDEOS

Douglas Vakoch on METI

<https://mail.google.com/mail/u/0/?tab=wm#inbox/162c9cf01a745329?projector=1&messagePartId=0.1>

Ted Peters, "The Myth of Evolution of ET," SETI address. <http://tedstimelytake.com/science-n-faith/>

5th Week, October 5

Student led discussions of common readings

REQUIRED READING

Astro 7. Wiseman on Exoplanets and ETI

9. Hewlett, Yes, We'll Meet Them: a Scientific Argument

10. Putz, Yes, We'll Meet Them: a Theological Argument

ESE 1. Schwartz and Milligan, Introduction

6. Lupisella on theories of value

7. Schwartz on methodology of space ethics

12. Cockell on intrinsic value of microbial life

RECOMMENDED READING:

ESE 14. Smith on Martian microbes

Peters, "Does Extraterrestrial Life Have Intrinsic Value? An Exploration in Responsibility Ethics," *International Journal of Astrobiology* 17:2 (2018) 1-7; <https://doi.org/10.1017/S147355041700057X>

STUDENT LEADERS

Student leaders will take a maximum of 10 minutes to (1) introduce the reading; (2) state succinctly the author's thesis and/or key points; (3) pose one or two questions to initiate discussion; and (4) serve as moderator of the discussion for an additional 10 minutes, make a total of 20 minutes.

Student on Hewlett and Putz _____

Student on Schwartz 1 & 7 _____

Student on Lupisella _____

Student on Cockell and Smith _____

6th Week, October 12

Field trip to NASA Ames

Students and guests are encouraged but not required to participate in the field trip to NASA Ames. Our host will be Mars expert, Christopher McKay. We will gather in the GTU parking area behind the LaConte Building at 12:00 noon, share cars to NASA, and return to Berkeley about 6:00pm. Three weeks prior, it will be necessary to file for Security Clearance. Each person participating will be required to submit Passport and other documentation. More information to come as the date approaches.

7th Week, October 19

Ted lectures on the alleged ETI Religious Crisis
Student led discussions

REQUIRED READING

REL Chapters 6-21

- Astro 11. Peters, a religious crisis?
12. Samuelson, Jewish theology meets the alien
13. Iqbal, Islamic theology meets the alien
14. Dick, a naturalistic cosmotheology
15. Graves, "ET: Call Church!"

VIDEOS

Religion and Ethics News Weekly, "Extraterrestrial Intelligence"

<http://www.pbs.org/wnet/religionandethics/2016/04/29/extraterrestrial-intelligent-life/30121/>

RECOMMENDED READING

LOW Dick, entire book

Student leaders will take a maximum of 10 minutes to (1) introduce the reading; (2) state succinctly the author's thesis and/or key points; (3) pose one or two questions to initiate discussion; and (4) serve as moderator of the discussion for an additional 10 minutes, make a total of 20 minutes.

Student on Samuelson + REL 6 _____

Student on Iqbal + REL 15 _____

8th Week, October 26-27: no class

GTU Reading Week

Pacific Coast Theological Society

Students Invited, Friday, October 26, 2:00-8:30pm

9th Week, November 2

Bob and Ted lecture on incarnation: one vs multiple?

REQUIRED READING

- Astro 16. Peters, "One Incarnation or Many?"
- 17. Russell: "Many Incarnations or One?"
- 18. Hess, "Multiple Incarnations..."
- 19. Moritz, "One *Imago Dei*..."

RECOMMENDED READING

SRSEI Wilkinson, entire book

Student leaders will take a maximum of 10 minutes to (1) introduce the reading; (2) state succinctly the author's thesis and/or key points; (3) pose one or two questions to initiate discussion; and (4) serve as moderator of the discussion for an additional 10 minutes, make a total of 20 minutes.

Student on Hess _____

Student on Moritz _____

10th Week, November 9

STUDENT LED DISCUSSIONS of BOOKS

REQUIRED READING

- CC Hart, pp. 89-406
- ESE 11. Arnould, "An Urgent Need to Explore Space"

Student takes 10 minutes for an oral book review followed by 10 minutes for class discussion. Book Reviewer moderates class discussion.

Student Book Review of Hart CC _____

Student Book Review on Dick LOW _____

Student Book Review of Wilkinson SRSEI _____

Student Book Review of Davies ES _____

Student Book Review of Drake Equation _____

Student Book Review of ELD _____

Student Book Review (other) _____

11th Week, no class

AAR/SBL

12th Week, no class

Thanksgiving

13th Week, November 30

TBA

14th Week, December 7

Student Research Reports

15th Week, December 14

Papers Due