

## **Philosophy 6406: Seminar in Philosophy of Science - Laws and Time Syllabus**

PHI 6406

Spring 2022

Thursdays 3:00pm - 6:00pm

Griffin-Floyd Hall, Room 0200

### **Instructor Information**

Chris Dorst

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Office: 312 Griffin-Floyd Hall

Office Hours: M/W 1:00pm - 2:30pm

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### **Course Description**

This course will focus on the relationship between the metaphysics of laws of nature and the metaphysics of time. We will begin by surveying some classical and contemporary positions in each field. With respect to laws, we will look at various Humean and anti-Humean positions; with respect to time, we will look at presentism, the growing block, and eternalism, as well as arguments about whether relativity motivates eternalism. Then we'll turn to some recent work concerned with the relationship between laws and time. In this latter part of the course, we'll explore questions like the following:

- To what extent do various accounts of laws presuppose a position about the metaphysics of time?
- In a block universe, what singles out one of the dimensions as temporal? Could this be a function of the laws?
- How should we understand dynamical laws in a relativistic setting?
- Is there a fundamental direction of time? To what extent is the answer to this question informed by adopting Humeanism or anti-Humeanism about laws?

### **Learning Objectives**

At the end of this course, students will be able to:

- Engage in sophisticated discussions about the metaphysics of laws and the metaphysics of time
- Explain some of the metaphysical implications of relativity
- Evaluate the compatibility of various conceptions of laws and time

### **Academic Honesty**

UF students are bound by The Honor Pledge, which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: 'On my honor, I have neither given nor received unauthorized aid in doing this assignment.'"

The Honor Code (<http://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor. **Plagiarism on any assignment will automatically result in a grade of "E" for the course.** Plagiarism is defined in the University of Florida's Student Honor Code as follows: "A student shall not represent as the student's own work all or any portion of the work of another. Plagiarism includes (but is not limited to): a. Quoting oral or written materials, whether published or unpublished, without proper attribution. b. Submitting a document or assignment which in whole or in part is identical or substantially identical to a document or assignment not authored by the student." Students found guilty of academic misconduct will be prosecuted in accordance with the procedures specified in the UF honesty policy.

### **In-Class Expectations**

In response to COVID-19, the following practices are in place to maintain your learning environment, to enhance the safety of our in-classroom interactions, and to further the health and safety of ourselves, our neighbors, and our loved ones.

- If you are not vaccinated, get vaccinated. Vaccines are readily available at no cost and have been demonstrated to be safe and effective against the COVID-19 virus. Visit this link for details on where to get your shot, including options that do not require an appointment:  
<https://coronavirus.uflhealth.org/vaccinations/vaccine-availability/>. Students who receive the first dose of the vaccine somewhere off-campus and/or outside of Gainesville can still receive their second dose on campus.
- You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated. Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.
  - Sanitizing supplies are available in the classroom if you wish to wipe down your desks prior to sitting down and at the end of the class.
  - Hand sanitizing stations will be located in every classroom.
- If you are sick, stay home and self-quarantine. Please visit the UF Health Screen, Test & Protect website about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email [covid@shcc.ufl.edu](mailto:covid@shcc.ufl.edu)) to be evaluated for testing and to receive further instructions about returning to campus. UF Health Screen, Test & Protect offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the [UF Health Screen, Test & Protect website](#) for more information.
  - Course materials will be provided to you with an excused absence, and you will be given a reasonable amount of time to make up work.

- If you are withheld from campus by the Department of Health through Screen, Test & Protect you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- Continue to regularly visit [coronavirus.UFHealth.org](https://coronavirus.UFHealth.org) and [coronavirus.ufl.edu](https://coronavirus.ufl.edu) for up-to-date information about COVID-19 and vaccination.

### **Canvas e-Learning Environment**

This course is supplemented by online content in the e-Learning environment known as "Canvas." To login to the e-Learning site for this course, go to <https://lss.at.ufl.edu/>, click the **e-Learning in Canvas** button, and on the next page enter your Gatorlink username and password. You can then access the course e-Learning environment by selecting PHI 6406 from the **Courses** pull-down menu at the top of the page. If you encounter any difficulties logging in or accessing any of the course content, contact the UF Computing Help Desk at (352) 392-4537. Please do not contact the course instructor regarding computer issues.

### **Online Course Evaluation**

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.ua.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.ua.ufl.edu/public-results/>.

### **Accommodation for Students with Disabilities**

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://www.dso.ufl.edu/drc/)) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

### **Counseling and Wellness Center:**

<http://www.counseling.ufl.edu/cwc/Default.aspx>, 392-1575

### **University Police Department:**

392-1111 or 9-1-1 for emergencies.

### **Course Texts**

- None. Readings will be provided as PDFs on Canvas.

### **Course Requirements**

Attendance/Participation: 15%

Presentation(s): 25%

Final Paper Abstract: 10%

Final Paper: 50%

### **Participation**

Respectful participation in class discussions is expected of everyone. Each class meeting has assigned readings, which will require critical engagement and reflection. You should come to class prepared to discuss these readings and demonstrate that you have thought critically about them beforehand.

### **Presentations**

Students will be required to present on one or more of the assigned readings (the number of presentations will depend on how many students enroll). Presentations should run for roughly 20-30 minutes (though longer is fine), and should explain the main arguments of the paper and lay the groundwork for our group discussion.

### **Final Paper Abstract**

By April 1, students should send me an abstract/synopsis of roughly 500 words summarizing the arguments you plan to make in your term paper. I will provide comments on these and make suggestions for further readings.

### **Final Paper**

The final paper should be a substantial paper of 6000+ words that makes a novel contribution to the literature. It can be on any topic of your choosing that is related to the course content.

### **Course Schedule and Readings**

The following is a tentative schedule for the course. Any official changes to the schedule will be announced in class. The syllabus is divided into weeks; the items listed for a given week are to be read before class that week.

Week 1: January 6

- Introduction to the course; no reading

Week 2: January 13 - The Best System Account of Laws 1

- David Lewis, excerpt from *Counterfactuals*
- Helen Beebe, "The Non-Governing Conception of Laws of Nature"

Week 3: January 20 - The Best System Account of Laws 2

- Barry Loewer - "Humean Supervenience"
- Christian Loew and Siegfried Jaag - "Making Best Systems Best *for Us*"

Week 4: January 27 - Anti-Humeanism 1

- Fred Dretske - "Laws of Nature"
- Tim Maudlin - "A Modest Proposal Concerning Laws, Counterfactuals, and Explanations"

Week 5: February 3 - Anti-Humeanism 2

- Marc Lange - "Why do the Laws Explain Why?"

Week 6: February 10 - Relativity and the Metaphysics of Time 1

- Hilary Putnam - "Time and Physical Geometry"

Week 7: February 17 - Relativity and the Metaphysics of Time 2

- Dean Zimmerman - "Presentism and the Space-Time Manifold"

Week 8: February 24 - Relativity and the Metaphysics of Time 3

- John Earman - "Reassessing the Prospects for a Growing Block Model of the Universe"

Week 9: March 3 - Time's Passage and Direction

- Tim Maudlin - "On the Passing of Time"
- Huw Price - "The Flow of Time"

Week 10: March 10

- **No Class (Spring Break)**

Week 11: March 17 - Laws and the Direction of Time

- Tim Maudlin - "The Whole Ball of Wax"
- Barry Loewer - "Two Accounts of Laws and Time"

Week 12: March 24 - Picking out the Temporal Dimension with the Laws

- Craig Callender - "The Differences Between Time and Space"
- Craig Callender - "Laws, Systems, and Time"

Week 13: March 31 - Governing Laws in a Block Universe 1

- Eddy Keming Chen and Sheldon Goldstein - "Governing Without A Fundamental Direction of Time: Minimal Primitivism about Laws of Nature"

Week 14: April 7 - Governing Laws in a Block Universe 2

- Chris Dorst - "Productive Laws in Relativistic Spacetimes"

Week 15: April 14

- **TBD**

**Final Paper Due Friday, April 22 at 11:59pm**