

Please note: This is only a provisional draft of the course outline. It is intended to give you a sense of what the course will be about. Readings and important course dates may change before the semester begins.

PHIL 490 A03/Phil 521 A01:

Why Use Pictures? The Role of Images and Visual Representations in Science

Instructor: Eric Hochstein

CRN: 22381/22384

Time: Wednesdays 2:30 PM –5:20 PM

Location: Clearihue Building B315

Office Hours: (in Clearihue B330): Tuesday, 2:30-4:30 pm; and by appointment

Email: ehochstein@uvic.ca

Description: Images, pictures, and maps play a huge role in different domains of science. But what is it about images that makes them scientifically valuable? Why not simply use mathematical or linguistic models and theories in science? This course will explore the nature of visual representations in science. We will explore how such images and visual representations differ from other sorts of representations in science, why they are used, and what their virtues and limitations are in the context of science.

Structure: The course comprises 1 seminar per week, the contents of which will be based on the assigned external sources. The course will proceed primarily through discussions and presentations.

Evaluation: The course will be graded as follows:

- 1 in-class presentation worth 15% total (this will involve a very brief summary and explanation of a few key points of the reading for that day, and leading class discussion).
- 2 papers, one worth 35% the second 40%
- A brief (one page max) summary of each course reading, **due in class** the day that reading is being covered. All summaries together are worth 10% (1% per summary handed in. You can miss 2 summaries with no penalties)

Policy on assignments, tests, and term papers: The term papers are due in class, **in hard copy**, on the announced deadline. Late papers will receive a deduction of 5% per day until handed in. Summaries that are not handed in during class time will not be accepted.

Important to Note: It is expected that students will prepare for and attend class regularly. Students are encouraged to consult the instructor with any problems or concerns about the course early in the semester.

Grading System:

Percentages	Letter Grade	Grade Point
90 – 100	A+	9
85 – 89	A	8

80 – 84	A-	7
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An A+, A, or A- is earned by work which is technically **superior**, shows mastery of the subject matter, and in the case of an A+ offers original insight and/or goes beyond course expectations. Normally achieved by a minority of students

77 – 79	B+	6
73 – 76	B	5
70 – 72	B-	4

A B+, B, or B- is earned by work that indicates a **good** comprehension of the course material, a good command of the skills needed to work with the course material, and the student's full engagement with the course requirements and activities. A B represents a more complex understanding and/or application of the course material. Normally achieved by the largest number of students.

65 – 69	C+	3
60 – 64	C	2

A C+ or C is earned by work that indicates an **adequate** comprehension of the course material and the skills needed to work with the course material and that indicates the student has met the basic requirements for completing assigned work and/or participating in class activities

50 – 59	D	1
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A D is earned by work that indicates **minimal** command of the course materials and/or minimal participation in class activities that is worthy of course credit toward the degree.

0 – 49	F	0
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F is earned by work, which after the completion of course requirements, is **inadequate** and unworthy of course credit towards the degree.

Interpretation of these grade definitions is up to the discretion of the instructor. If you receive a grade during the course that you believe is unfair, please begin by discussing the matter with the instructor (or TA) in a respectful, open-minded manner. Rest assured that if you still believe the grade you received is unfair you can appeal the matter to the chair of the department.

For additional information regarding grades, please see pp. 51-53 of the most recent (September 2018) edition of the Uvic Undergraduate Calendar.

All evaluations of tests and assignments will be calculated according to percentage scores. Letter grades and grade point scores are listed purely for reference.

Final examinations are the property of Uvic and are not returned. They are available for viewing at the Records Office according to Uvic procedures and regulations (pp. 49-51 of the calendar).

Uvic is committed to providing a safe, supportive learning environment for all members. Further information regarding Uvic policies on human rights, equity, discrimination and harassment are located in the Uvic calendar (p. 15), but if you have any particular concerns in our course please do not hesitate to contact me.

Tentative Schedule of Readings:

Week 1 (Jan 9)

No Readings

Week 2: (Jan 16)

Readings:

- Camerini, J. (1993). "Evolution, Biogeography, and Maps: An Early History of Wallace's Line"

Week 3 (Jan 23):

Readings:

- Harley, J, (1988). "Maps, knowledge, and power"

Week 4 (Jan 30):

Readings:

- Meynell, L. (2008). "Pictures, Pluralism, and Feminist Epistemology: Lessons from 'Coming to Understand'."

Week 5 (Feb 6):

Readings:

- Larkin, J. & Simon, H. (1987). "Why a Diagram is (Sometimes) Worth Ten Thousand Words."

Week 6 (Feb 13):

Readings:

- Nersessian, N. (1988). "Reasoning from Imagery and Analogy in Scientific Concept Formation."

Week 7 (20): Reading Week

No Classes

Week 8 (Feb 20, Feb 21 & Feb 23):

First Term Paper due Feb 20 (first class after reading week)

Readings:

- Roskies, A. (2006). "Are Neuroimages Like Photographs of the Brain?"

Week 9 (Feb 27):

Readings:

- Burnston, D., Sheredosa, B., Abrahamsenb, A., Bechtel, W. (2014). "Scientists' Use of Diagrams in Developing Mechanistic Explanations: A Case Study from Chronobiology"

Week 10 (Mar 6):

Readings:

- Sheredosa, B., Burnston, D., Abrahamsenb, A., Bechtel, W. (2012). “Why do biologists use so many diagrams?”

Week 11 (Mar 13):

Readings:

- Kulvicki, J. (2010). “Knowing with Images: Medium and Message”

Week 12 (Mar 20):

Readings:

- Moser, S. (1996). “Visual Representation in Archaeology: Depicting the Missing-Link in Human Origins”

Week 13 (Mar 27):

Readings:

- Giere, R. (1996) “Visual Models and Scientific Judgment”

Week 14 (Apr 3):

Second Term Paper Due April 3rd

Readings:

- Meynell, L. (2008). “Why Feynman diagrams represent.”

Note on Avoidance of Academic Offenses:

All students registered in the course are expected to know what constitutes an academic offence, to avoid committing academic offenses, and to take responsibility for their academic actions. When the commission of an offense is established, it will be acknowledged by disciplinary penalties. If you need help in learning how to avoid academic offenses such as plagiarism, cheating, and double submission, or if you need clarification of aspects of the discipline policy, ask your course instructor for guidance. You can find the university’s Policy on Academic Integrity here:

<http://web.uvic.ca/calendar2017-09/undergrad/info/regulations/academic-integrity.html>

If you are seeking editing help, please note that the university has recently adopted a strict view about seeking the help of others for editing. They say (this can be found in the link above):

An editor is an individual or service, other than the instructor or supervisory committee, who manipulates, revises, corrects or alters a student’s written or non-written work.

The use of an editor, whether paid or unpaid, is prohibited unless the instructor grants explicit written authorization. The instructor should specify the extent of editing that is being authorized. Review by fellow students and tutoring that do not include editing are normally permitted.

Note for students with disabilities:

The Centre for Accessible Learning (<http://www.uvic.ca/services/rcsd/>) is a fantastic resource that collaborates with all academic departments to help arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with them at the beginning of each academic term.