THE UNITY OF SCIENCE
(INCL. RESEARCH AND PUBLISH LAB)

(PhD-level, elective, 4cp)

Description

If the world has a universal order, then the sciences studying it should be unified too. This connection between metaphysical questions (how the world is) and questions of epistemology and philosophy of science (how and what kind of knowledge is and should be produced) has accompanied philosophy ever since pre-Socratic cosmology. Contemporarily, most would associate a belief in a unity of science with the Vienna Circle and logical positivism (Neurath and Carnap as probably most well known in that respect), and with successor projects on reduction (such as Oppenheim and Putnam's or Nagel's model). Within that classic tradition (not to mention ancestors) there were significant differences regarding the assumed kind of unity. Which variants of a unity of science can we discern? And what legacy have these ideas left for contemporary views regarding the relationships between scientific disciplines and the phenomena they study? What are recurring methodological and metaphysical assumptions? Are they justified? What are the connections to visions of unity in society?

In this course, which has a *Research and Publish Lab* attached to it, we will explore these and related questions. After a brief historical introduction, the course begins with John Dupré's *The Disorder of Things* (1993), almost itself a classic approach by now. We will read and discuss this book in order to get a first overview and a firm grasp and a detailed critique of three fundamental assumptions behind the idea of a cosmic order in the universe and the respective unity of the sciences studying aspects of this order: essentialism, reductionism and determinism. Over the following three weeks we will then read three classic texts defending a unity of science point of view and then discuss papers from the contemporary literature on the topic.

As part of the course, students will have the opportunity to train three kinds of necessary know-how related to research and its publication: (a) know-how to *write different formats of texts*, (b) know-how to *use professional databases* for research, and (c) know-how to *publish* one's research results (see below for details). As part of this, students will be required to explore the contemporary literature within groups and present papers that they deem relevant and interesting to the issues explored in the group.

The setup will allow in-depth reflection and practice of the targeted know-how in relation to actual study assignments connected with the course (rather than abstract, 'dry' or 'disembodied' training). It will also allow students to discuss with peers problems that occur during the research process, since they will all be in similar situations and assisted by a peer tutor. Students will thus approach the learning goals regarding both know-that (the knowledge about the state-of-the art regarding the dis/unity of science) and know-how (the knowledge about how to do research and publish it) in a problem oriented, peer-oriented and reflective manner.

The overview below illustrates how the know-that and the know-how shall be integrated, which written assignments the students will be given and which reflective learning units are planned. Students will have to keep a learning notebook (the "Research-and-

Publish Notebook") in which they reflect on their individual learning goals, on methods they learned to reach them and on problems they individually have. Twice in the term they consult with the course instructor and discuss the notebook, which is not graded, in contrast to the other assignments.

Thee kinds of know-how

(a) *Tacit knowledge about different writing formats in academia*: Students usually write term papers and thus rarely learn about the different actual formats philosophers produce. Consequently, differences between a book review, a peer-review report and an argumentative piece are often not well understood. The *Research and Publish Lab* takes a step in the direction of teaching how to write *more realistic formats of texts,* i.e., the formats actually used by scholars. Students will produce as assignment a book review, a literature report, an argumentative piece and a peer-review.

(b) *Tacit knowledge about using professional databases*: How to do research in philosophy has changed a lot with the change in availability of resources online. It is usually not the case anymore that students cannot find enough publications on any given topic. The problem is rather that there is so much of it that it is difficult to find the 'needle in the haystack', those publications that are of relevance and quality. Students sometimes get some training from library staff, but this seems not to be as efficient as intended, presumably because it is 'disembodied', i.e., independent of actual study assignments.

(c) *Tacit knowledge about publishing:* Students often lack knowledge about how the world of publishing works (e.g., how journals are ranked, how double or triple blind-review works, what citation circles are, why there are publication biases, etc.). The course tries to deepen their know-how related to publishing by (c1) imitating an almost complete double-blind-review process, by including (c2) an introduction to the world of publishing and (c3) a special session of "Meet the Editor". In this session, an editor of a prestigious philosophy journal will tell about her or his work and answer specific questions that the students shall prepare before they meet the editor.

Learning goals

- To understand different aspects of unity, including linguistic co-ordination, theory reduction, explanatory unity, levels of organization.
- To understand the impact of unity and disunity on related issues in the philosophy of science such as natural kinds, causation, and supervenience.
- To understand major critiques of the unity of science movement, and the resultant post-unity positions, including non-reductive physicalism, disunity of science, and pluralism.
- To connect historical discussions to contemporary analyses though the independent selection of relevant contemporary material.
- To understand the socio-political setting of the unity of science movement and the impact that placing philosophical theories in historical context can have.
- To acquire the three kinds of know-how mentioned above.

Grading: 30% participation in discussions, 70% written assignments.

Course and lab instructor: Maria Kronfeldner
Teaching assistant and peer tutor: Matthew Baxendale

OVERVIEW

Wk	Main Course meetings (Know-that)	Research and Publish Lab meetings (Know-how)	Written Assignment for Homework (graded, replace term paper)	Reflective Learning Units
1	1a. Introduction to the course topic, discussion of first chapter of book	1b. Discussion of book related to course topic		Start a Research-and-Publish Notebook by writing down your individual learning goals
2	ditto	ditto		
3	ditto	ditto		
4	Discussion of research literature (classic)	Tacit knowledge: „**How to write a book review**“ Tasks: - Search for a good book review in the field (but not one on the book we were reading!) - Discuss it with respect to the standards for a good book review	Write a draft of your **book review** (1000 words)	Make your notes regarding book reviews
5	Discussion of research literature (classic)	Tacit Knowledge: “**How to find the needle in the haystack?**” Tasks: - Search online for 30 minutes the way you usually do - Search in Google Scholar - Discuss your keywords - Search in a professional philosophical database - Search in a general database (e.g. Web of Science, WorldCat) - Compare the results, discuss pros-and-cons of the different ways of searching *In collaboration with the library	Do a brief **literature report** on your topic of choice (500 words) Revise **your book review**	Make your notes regarding database sarch
6	Discussion of research literature (classic)	Training: How to give critique, how to take critique in **Triadic Feedback Groups** Tasks: Discuss your book review with peers	Contact Tom Rooney from the CAW to schedule an individual writing consultation	Make your notes on what you want to learn in regards to giving critique and taking critique Meet with the course instructor and discuss

				your notebook
7	Discussion of research literature (contemporary approach)	Training: **Develop an argument of your own** Tasks: - How are you developing an argument? Share your technique and develop it - Write down the standards of evaluation	Do an **argumentative piece** on your topic of choice (1000 words)	Mid-term questionnaire feedback unit (* in cooperation with the CTL)
8	Discussion of research literature (contemporary approach)	Training: **Develop an argument of your own** - Discuss in groups your draft of an argumentative piece	Discuss your draft of with Tom Rooney	
9	Discussion of research literature (contemporary approach)	Tacit Knowledge: "**How to do a peer-review**" Tasks: - Do a double blind peer-review of an argumentative piece from your peers (250 words)	Finalize your **peer review** and share it (250 words)	Make notes on what you learned and what you still wish to learn regarding peer review processes
10	Discussion of research literature (contemporary approach)	Tacit Knowledge: **The world of journal publishing** (citation metrics, open access) * with in-house input from Diane Geraci * in cooperation with PULSE		Make notes on what you learned and what you still wish to learn regarding academic publishing
11	Discussion of research literature (contemporary approach)	Guest lecture: **Trends and problems in academic publishing** (e.g. on publication biases) *In collaboration with the library		Make notes on what you learned and what you still wish to learn regarding academic publishing
12	Tacit Knowledge: How to get a research paper published Prepare for meeting an editor	**Meet the editor** (with Hannes Leitgeb, Editor of Journal *Erkenntnis*)		Make notes on what you learned and what you still wish to learn regarding academic publishing Meet with the course instructor and discuss your notebook and your state of art regarding your learning goals Finalize your Research-and-Publish Notebook End-term feedback unit (* in cooperation with the CTL)

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