

TIK9024 RESEARCH, INNOVATION & IMPACT

This course description applies to the academic year 2019/2020. The course is part of the Norwegian Research School in Innovation Studies ([NORSI](#)) and it is organised by TIK Centre for Technology, Innovation and Culture and part of the activities of the Oslo Institute for Research on the Impact of Science ([OSIRIS](#)).

Version: 5 November 2019

RESPONSIBLE FOR THE COURSE

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PRACTICALITIES

The lecture part of the course is held in its entirety at the University of Oslo.

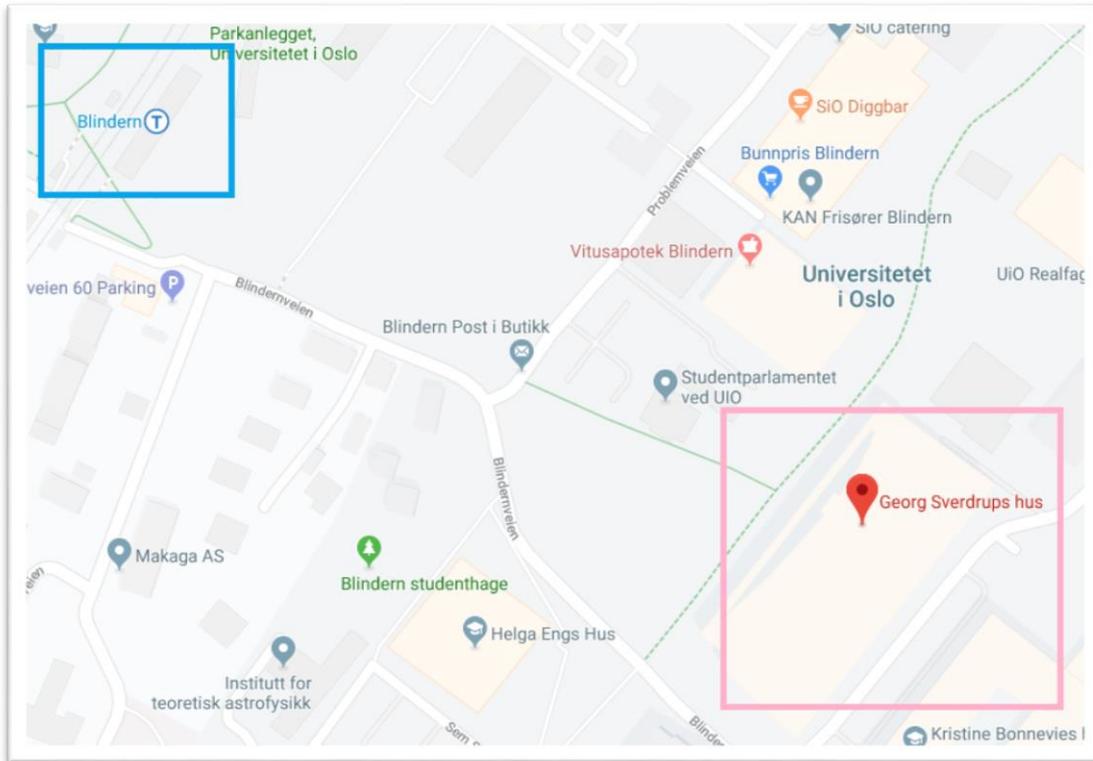
The course is free of charge and candidates will get all lunches and one dinner covered. NORSI enrolled candidates will also get their travel and accommodation costs reimbursed by NORSI:

<http://norsi.no/network/travel-refund/>

TIME AND PLACE

TIK9024 is organised by the TIK Centre for Technology, Innovation and Culture, 2-6 December 2019.

All lectures take place at Blindern Campus, the main library building **Georg Sverdrups hus, "Grupperom 1" on the 3rd floor. See map below.**



Blue square: Blindern metro station. Pink square: Georg Sverdrup Building.

ECTS CREDITS

8 credits

LANGUAGE OF INSTRUCTION

English

ADMISSION/PREREQUISITES

Admission to a PhD programme is required for participation in this course. Other candidates such as early stage postdoc researchers and specialised final stage master students can be accepted by application to the course coordinator. It will also be possible for practitioners from science policy agencies and similar to attend the lectures and possibly other parts of the course. Please contact the course coordinator for more details.

Applicants are to submit the application form along with a short motivation letter and a letter of confirmation regarding candidacy within a PhD programme. The application form can be found on the course web site.

Deadline for application: November 20th, 2019

INTRODUCTION

This course will look at how public research contributes to innovation and at the broader societal impacts of investment in scientific knowledge. What do we mean when we talk about public research? How and why does it matter for innovation and impact in industry and in society? How can this be studied empirically? Is there a

way to resolve the many contested issues emerging at the intersection between entrepreneurship, science and innovation policy?

In the late 1970s, it became apparent that new high technology firms seemed to cluster around leading research universities such as MIT and Stanford in the US and Cambridge in the UK. Research in such organisations as well as in public labs seemed to be a major force in the electronics and ICT revolutions. Since then the interest in how research organisations contribute to innovation and other forms of societal impacts has exploded. Policymakers have pushed for increased commercialisation from science and improved linkages between universities and industry, and they have called upon public research to contribute to solving society's grand challenges.

Although the interest in the utility of public science may be as old as science policy itself, the last decades represent a stronger belief in building a support structure around utility value and making this a more explicit demand to publicly funded research. Empirical investigations, particularly on academic entrepreneurship and university-industry linkages, have emerged hand in hand with the policy interests in these topics. The course aims to present and discuss literature from different conceptual traditions and with empirical data from different countries.

LEARNING OUTCOMES

The students will become acquainted with classic and recent perspectives on the relationship between research and innovation. The course will also address academic entrepreneurship, university-industry linkages and research impact studies. We will design the course as a combination of traditional lectures, exercises, student presentations and group discussions. We do not assume that students are specialists in the area, but that their PhD topic may include an element of the link between research and innovation or have a science/innovation policy framing.

COURSE OUTLINE

Each day will have a mixture of theoretical lectures, discussions and student presentations. We aim for linking the course to practice through exercises and discussions.

LEARNING PROCESS AND WORKLOAD

All students will be expected to read the course literature before attending. They will also be required to make one presentation themselves and to participate actively in group discussions. 8 credit points correspond to 8 work weeks, which includes preparation, reading and writing a paper.

EXAMINATION

A term paper of 5000-10000 words is required in addition to active participation in the lecture week. The evaluation will be based on participation and the quality of the term paper.

Grade: pass/fail. Paper will be due by the end of February 2020.

Transcript from the course is attainable through studentweb at the University of Oslo website. All candidates accepted for admission will be registered as guest students at UiO. Studentweb is then accessible with your date of birth and Norwegian ID-number and a PIN-code issued at your admission to the course. Please contact Lene Angelskår with any practical questions regarding admission and transcripts.

TENTATIVE COURSE OUTLINE

Each day will have a combination of lectures and other types of organised learning. There will be coffee breaks when needed (not put formally into the schedule). Schedules are tentative and flexible.

MONDAY DECEMBER 2ND: PERSPECTIVES ON THE RELATIONSHIP BETWEEN RESEARCH, INNOVATION AND IMPACT

Lecturer: Magnus Gulbrandsen (MG)

- 10.00 Welcome, round of presentations and information about the course (MG)
- 10.15 Lecture: Research – innovation – impact? Framing the benefits and usefulness of public research (MG)
- 12.30 Lunch
- 13.30 Lecture and discussion/group work: the crisis in public research and the Sarewitz debate (MG)
- 15.30 Student presentations. We aim for all students to have one presentation during the course. This can be either their own research projects (this is the preferred option), a paper they are working on that is related to the topic of the course, or someone else's article/book that is relevant to the course but not on the reading list. Maximum 10 minutes presentation followed by around 10 minutes of discussion. If they want to take part here, policymakers and other externals can do a 10 minute presentation about an issue from their work that is relevant to the course.
- 17.30 (Approximately) End of first day

Core readings:

Bermann, Elisabeth Popp (2011). *Creating the Market University*. Princeton University Press. Read chapter one, which is available here: <https://press.princeton.edu/titles/9619.html>

Perkmann, M. et al. (2013). Academic engagement and commercialisation: a review of the literature on university-industry relations. *Research Policy* 42:423-442.

Sarewitz, D. (2016). Saving science. *The New Atlantis*. Available here: <http://www.thenewatlantis.com/publications/saving-science>

Additional literature:

Etzkowitz, H. (1998). "The Norms of Entrepreneurial Science: cognitive effects of the new university-industry linkages", *Research Policy*, 27(8): 823-833.

Etzkowitz, Henry & Loet Leydesdorff (2000), The dynamics of innovation: from national systems and 'Mode 2' to a Triple Helix of university-industry-government relations, *Research Policy*, 29:109-123.

Gibbons M, Limoges C, Nowotny H., Schwartzman, S., Scott, P. and Trow, M. (1994). *The New Production of Knowledge: The Dynamics of Science and Research in Contemporary Societies*. London: Sage. Introduction and chapter 1 and 2.

Martin, B.R. (2012). Twenty challenges for innovation studies. *Science and Public Policy*, 43:432-450.

Rosenberg, N. and Nelson, R.R. (1994). "American universities and technical advance in industry", *Research Policy*, 23:323-348.

Salter, A.J. & B.R. Martin (2001). The economic benefits of publicly funded basic research: a critical review. *Research Policy* 30:509-532.

Schot, J. & E. Steinmueller (2018). Three frames for innovation policy: R&D, systems of innovation and transformative change. *Research Policy*, 47: 1554-1567.

Stokes, D.E., 1997, *Pasteur's Quadrant: basic science and technological innovation*. Washington, D.C.: Brookings Institution Press.

TUESDAY DECEMBER 3RD: UNIVERSITY-INDUSTRY RELATIONS

Lecturers: Pablo D'Este (PDE) and MG

09.30 Lecture: University-Society relations: modes of interaction, networks and impacts (PDE)

11.30 Lunch

12.30 Lecture: Scientific research networks and innovation (PDE)

14.30 Group work: Different methods for investigating cross-sector partnerships and engagement (PDE/MG)

16.30 Formal end of day 2

18.30 Dinner for all faculty and students. Place to be decided later.

Core readings:

These represent different ways of studying university-industry relations empirically

D'Este, P., & Patel, P. (2007). University–industry linkages in the UK: What are the factors underlying the variety of interactions with industry? *Research Policy*, 36(9), 1295–1313.

Gulbrandsen, M. & Smeby, J.-C. (2005). Industry funding and university professors' research performance. *Research Policy*, 34:932-950.

Laursen, K. & Salter, A. (2004): Searching high and low: what types of firms use universities as a source of information? *Research Policy*, Vol. 33, pp. 1201-1215

Perkmann, M. & K. Walsh (2007). University–industry relationships and open innovation: Towards a research agenda. *International Journal of Management Reviews* 9:259-280.

Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial opportunities. *Organization Science*, Vol. 11 (4), pp. 448-469.

Additional readings:

Most of the literature from Day 1 will be relevant this day (and later days) as well.

Bozeman, B. Fay, D. & Slade, C. 2013. Research collaboration in universities and academic entrepreneurship: the state of the art. *Journal of technology transfer*, 18:1-67

Gulbrandsen, M. & T. Thune (2017). The effects of non-academic work experience on external interaction and research performance *Journal of technology transfer*, 42:795-813.

Ter Wal ALJ, Alexy O, Block J, Sandner PG. (2016). The best of both worlds: The benefits of open-specialized and closed-diverse syndication networks for new ventures' success, *Administrative Science Quarterly*, 61(3): 393–432.

Van de Ven, A.H. and Johnson, P.E. (2006). Knowledge for theory and practice, *Academy of Management Review*, 31 (4): 802-821.

WEDNESDAY DECEMBER 4TH: IMPACT OF RESEARCH

Lecturers: Taran Thune (TT) and Ismael Rafols (IR)

09.00 Lecture and discussion: Values and uncertainty in impact (IR)

10.30 Lecture and discussion: Impact on policy – the perspective from policy (TT)

11.45 Lunch

12.45 Lecture and discussion: Indicators in ex-post assessments, portfolios in ex ante assessments (IR)

14.45 Group work organised by the Research Council of Norway

16.30 End of Day 4

Core readings:

Amara, N., Ouimet, M., & Landry, R. (2004). New evidence on instrumental, conceptual, and symbolic utilization of university research in government agencies. *Science Communication*, 26(1), 75-106.

Lepori, B., Barré, R., & Filliatreau, G. (2008). New perspectives and challenges for the design and production of S&T indicators. *Research Evaluation*, 17(1), 33-44.

Newman, J., Cherney, A., & Head, B. W. (2017). Policy capacity and evidence-based policy in the public service. *Public Management Review*, 19(2), 157-174.

Rafols, I. (2017). There's no silver bullet for measuring societal impact. *Research Europe*, 12 October 2017.

Sarewitz, D., & Pielke, R. A. (2007). The neglected heart of science policy: reconciling supply of and demand for science. *Environmental science & policy*, 10(1), 5-16.

Stirling, A. (2010). Keep it complex. *Nature*, 468(7327), 1029-1031.

Additional literature:

- Joly, P. B., Gaunand, A., Colinet, L., Larédo, P., Lemarié, S., & Matt, M. (2015). ASIRPA: A comprehensive theory-based approach to assessing the societal impacts of a research organization. *Research Evaluation*, 24(4), 440-453.
- Nutley, Sandra M., et al. Using Evidence: How Research Can Inform Public Services. 1st ed., Bristol University Press, 2007. JSTOR, www.jstor.org/stable/j.ctt9qgwt1
- Ràfols, I. (2019). S&T indicators in the wild: Contextualization and participation for responsible metrics. *Research Evaluation*, 28(1), 7-22.
- Spaapen, J., & Van Drooge, L. (2011). Introducing 'productive interactions' in social impact assessment. *Research Evaluation*, 20(3), 211-218.
- Stirling, A., Leach, M., Mehta, L., Scoones, I., Smith, A., Stagl, S., & Thompson, J. (2007). Empowering Designs: towards more progressive appraisal of sustainability. Available at: <http://www.ids.ac.uk/go/idspublication/empowering-designs-steps-towards-more-progressive-social-appraisal-of-sustainability>
- Van Drooge, L. & Spaapen, J. (2017). Evaluation and monitoring of transdisciplinary collaborations. *Journal of Technology Transfer*. Doi 10.1007/s10961-017-9607-7.

THURSDAY DECEMBER 5TH: RESEARCH, EXPERTS AND RESPONSIBILITY

Lecturers: Magnus Gulbrandsen (MG), Silje Tellmann (ST) and Ellen-Marie Forsberg (EMF)

- 09.30 Lecture and discussion: what do we mean when we talk about research organisations? (MG)
- 11.00 Lecture: Experts and expertise in research (ST)
- 12.00 Lunch
- 13.00 Lecture: Responsible Research and Innovation (RRI) – status and future prospects (EMF)
- 14.30 Workshop on responsibility and integrity in research (EMF)
- 16.00 The last student presentations.
- 16.30 (approximately) End of day 3

Core literature:

ALLEA, 2017, *The European Code of Conduct for Research Integrity*. Revised Edition. Berlin: All European Academies (ALLEA).

Gulbrandsen, M., 2011, Research institutes as hybrid organisations: central challenges to their legitimacy. *Policy sciences*, 44:215-230.

Pielke, R. (2007). *The Honest Broker. Making Sense of Science in Policy and Politics*. Cambridge: Cambridge University Press. Four chapters:

- Chapter 1 (pp 1-7): Four idealized roles of science in policy and politics
- Chapter 2 (pp 8-21): The big picture, science, and democracy

Chapter 3 (pp 22-38): Science and decision-making
Chapter 9 (pp 135-152): Making sense of science in policy and politics

Stilgoe, J., R. Owen & P. Macnaghten, 2013, Developing a framework for responsible innovation. *Research Policy*, 42:1568-1580.

Additional literature:

H. M. Collins and R. Evans (2007): *Rethinking Expertise*. The University of Chicago press.
Introduction (pp 1-12): Why Expertise?
Chapter 1 (pp 13- 44) The Periodic Table of Expertises 1: Ubiquitous and Specialist Expertises

Pielke (2007): rest of the book

FRIDAY DECEMBER 6TH: SCIENCE POLICY AND INNOVATION POLICY

Lecturers: Liv Langfeldt (LL) and MG

- 09.30 Lecture: Science policy and innovation policy – origins, intersection and challenges (MG)
- 11.00 Lecture: The policies and diversity of excellence (LL)
- 12.00 Lunch
- 13.00 Final discussion: The future of science and innovation policy – and our own possible contributions to it (MG)
- 14.30 End of Day 5

Core readings:

Flanagan, K. & E. Uyarra (2016). Four dangers in innovation policy studies – and how to avoid them. *Industry & Innovation*, 23:177-188.

Gläser, J. & G. Laudel (2016). Governing science. How science policy shapes research content. *European Journal of Sociology*, 57:117-168.

Lamont, M. (2009). Recognising various kinds of excellence. Chapter 5 in *How Professors Think*. Cambridge, MA: Harvard University Press.

Langfeldt L., M. Benner, G. Sivertsen, E. H. Kristiansen, D. W. Aksnes, S. B. Borlaug, H. Foss Hansen, E. Kallerud, A. Pelkonen (2015). Excellence and growth dynamics - a comparative study of the Matthew effect. *Science and Public Policy* 42(5): 661-675.

Langfeldt, L.; M. Nedeva; S. Sörlin; D. Thomas (2019). Co-existing Notions of Research Quality: A Framework to Study Context-specific Understandings of Good Research. *Minerva*, DOI: 10.1007/s11024-019-09385-2.

Ruivo, B. (1994). 'Phases' or 'paradigms' of science policy? *Science and Public Policy*, 21:157-164.

Additional literature:

Gulbrandsen, M. & H. Etzkowitz (1999), Convergence between Europe and America: the transition from industrial to innovation policy, *Journal of Technology Transfer*, 24:223-233.

Edler, J. & J. Fagerberg (2017), Innovation policy: what, why, and how. *Oxford Review of Economic Policy*, 33:2-23.

Lundvall, B-A. & S. Borrás (2005), Science, technology, and innovation policy. In Fagerberg et al. (Eds), *Oxford Handbook of Innovation*, 599-631.