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| **Doctoral Programme** **Course Unit Outline 2020/21** |
| **Unit code:**  | **BMAN 80962** |
| **Title:** | **Advanced Methods in Science, Technology and Innovation Policy Analysis** |
| **Credit value:** | 15 |
| **Semester:** | 2 |
| **Course Coordinator** **contact details:** | Philip ShapiraAMBS 9.004; 5x7376; pshapira@manchester.ac.ukOffice Hours: Tue 09h-11h or by appointment |
| **Other staff involved contact details:** | TBA |
| **Pre-requisites****Co-requisites****Dependent course units****Restrictions** | None |
| **Course unit overview** |
| Principles and applications of advanced methods for science, technology and innovation policy analysis. |
| **Aims** |
| Introduce and explain selected advanced methods used in studying science, technology and innovation policy, including bibliometrics, patent analysis, data analytics, and evaluation.Consider conceptual underpinning and underlying assumptions of these methods, as well as their suitability and limitations to a variety of research scenarios.Provide hands-on experience with selected methods and software, through exercises and a project tailored to participant research interests and doctoral research topic. |
| **Objectives (Learning outcomes)** |
| On completion of this unit successful students will:* Increase their familiarity with a range of advanced methods used in studying science, technology and innovation policy
* Enhance their comprehension and skills in linking research design, data collection, and analytical methods to research questions in science, technology and innovation policy
* Gain insight and experience to select the most suitable method for their research topics
* Understand the conceptual underpinnings and limitations of methods
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| **Syllabus content** |
| Research design and methods in science, technology and innovation policy Data Types: structured and semi structured data (including data on bibliometric, patents, careers, surveys, etc.) and unstructured data (including websites, documents, social media, etc.)Data collection, cleaning and analysis methods (including automatic and semi-automatic methods and tools)Selected advanced methods used in studying science, technology and innovation policy, including bibliometrics, patent analysis, data analytics, evaluation methods, network analysis, and analysis of social media data (specific methods focused on may vary) |
| **Methods of delivery** |
| **Lectures** | N/A |
| **Seminar/Tutorial/Workshop/Lab Hours** | 20 hours |
| **Independent Study** | 130 hours |
| **Total Study Hours** | 150 hours |
| **Reading List** |
| **Pre Reading**:Gök, Abdullah; Waterworth, Alec & Shapira, Philip (2015) Use of Web Mining in Studying Innovation. *Scientometrics*, 102(1):653-671. doi:10.1007/s11192-014-1434-0M. Watts, The Holy Grail: In Pursuit of the Dissertation Proposal. Institute of International Studies, University of California, Berkeley, 2001. See also additional documents at <http://iis.berkeley.edu/node/304>**Core Text:** Porter, Alan and Cunningham, Scott (2005) Tech Mining: Exploiting New Technologies for Competitive Advantage. Wiley**Supplementary Text**Glänzel, W., Moed, H.F., Schmoch, U., Thelwall, M. (Eds.), Springer Handbook of Science and Technology Indicators, 2019.WIPO Open Source Patent Analytics Manual:  <https://wipo-analytics.github.io/>Research Methods Knowledge Database (Online). <http://www.socialresearchmethods.net/kb/contents.php>. |
| **Assessment** |

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| **Mode of Assessment** | **Length required** | **Weighting within unit** |
| Individual report (in poster format) based on an application of an advanced method on the student’s research topic. Posters should include:* problem statement, literature review, research questions and propositions (if any) (at most 1/3 of the poster area)
* discussion of alternative data collection and analysis methods available, including their relative advantages and disadvantages
* rationale for the selection of a research strategy
* operational details of the chosen strategy

Submission deadline (via Blackboard): 3 June 2021 (10h UK); feedback returned between June 11 to June 25, between 5 (earliest) to 15 (latest) working days from submission.  | Poster report (A1 size, typically 9 panels) plus 15-minute presentation. | 100% |
| **Resits**: Will take the form of revising poster report so that it is of satisfactory (passable) quality. |  |  |

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| **Feedback methods** |
| Students will receive feedback through a series of methods, comprising:• Written and/or verbal comments on non-assessed (formative) and assessed coursework.• Informal advice and discussion during course meetings and following presentations.• Responses to student emails and questions. • Individual feedback in meetings with instructors (e.g. in office hours or by appointment).• Specific course related feedback discussion in course sessions.Feedback for all assessed coursework and formative assessment will be provided within 15 working days of the submission deadline. A working day is defined as Monday to Friday, not including bank holidays and excluding student vacation periods and University examination periods. For submission and feedback dates, see section on Assessment.In addition to the course unit evaluation questionnaire, students are encouraged to give feedback through emails and conversations at any time, and using the online questionnaire near the end of the semester |