IL138-15 Creating Digital Futures

23/24

Department
Institute for Advanced Teaching and Learning
Level
Undergraduate Level 3
Module leader
Isabel Fischer
Credit value
15
Module duration
10 weeks
Assessment
Multiple
Study location
University of Warwick main campus, Coventry

Description

Introductory description

The module offers Warwick students the opportunity to work in diverse interdisciplinary teams in response to a digital innovation competition brief set by Warwick's incubator 'Creative Futures' in partnership with the Student Enterprise Fund. Teams will have the option to apply post-module to a global external competition (e.g. set by Microsoft, Google, Finastra, etc.). So that students can meet the learning outcomes we will explore principles and tools, such as applying principles of design thinking (using the d.school approach), the EU ethics framework, Systems Models of Creativity, the Automation – Augmentation Paradox Theory, AI principles and Tuckman's model for teamwork.

Module aims

The modules aims to

- Provide students with the skills and support required to work as an interdisciplinary team to develop an innovative idea/product.
- Provide students with a context (the brief set by Warwick's incubator 'Creative Futures' in partnership with the Student Enterprise Fund) in which to focus and realise their innovative idea/product.
- Encourage students to evaluate their proposal/tool in the wider ESG (Environmental, Social and Governance) context, including policy and regulation.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

1. Introduction
2. Ideating and prototyping a digital innovation in response to a brief
3. Developing a digital innovation and checking for feasibility
4. Effective project management
5. Storytelling with data
6. Design and Arts
7. Ethics & reflecting on the impact on stakeholders and the digital ecosystem
8. Working as a diverse and interdisciplinary team on digital innovation
9. Presentations
10. Writing an effective individual assessment

Learning outcomes

By the end of the module, students should be able to:

- Understand the objectives of the digital innovation competition(s) that students can apply for
- Work collaboratively to invent or conceptualise a digital innovation
- Present an idea effectively with the audience in mind
- Analyse and critically reflect on the impact that a digital innovation can have on other stakeholders and the digital ecosystem, including isuues of sustainability, ethics and governance
- Critically evaluate their experience of interdisciplinary team work

Indicative reading list

- Christensen, C. M., Raynor, M. E. and McDonald, R. (2015) 'What Is Disruptive Innovation?', Harvard business review, 93(12), pp. 44–53. Available at: https://hciforstartups.org/wp-content/uploads/2021/10/What-Is-Disruptive-Innovation.pdf
- Fischer, I., Beswick, C. and Newell, S. (2020) 'Rho AI - Leveraging AI to address climate change: financing, implementation and ethics', The Journal of Information Technology Teaching Cases. Available at: http://wrap.warwick.ac.uk/141723/ and https://journals.sagepub.com/doi/full/10.1177/2043886920961782
- Foster, M. K. (2021) 'Design Thinking: A Creative Approach to Problem Solving', Management Teaching Review, 6(2), pp. 123–140. doi: 10.1177/2379298119871468.
- Hjalmarsson, A., Juell-Skielse, G, and Johannesson, P., 2017, Open Digital Innovation A Contest Driven Approach Progress, Springer
- Jobin, A., Ienca, M. and Vayena, E. (2019) 'The global landscape of AI ethics guidelines', Nature Machine Intelligence, 1(9), pp. 389–399. doi: 10.1038/s42256-019-0088-2.
- Katsamakas, E.; Miliaresis, K.; Pavlov, O.V. Digital Platforms for the Common Good: Social Innovation for Active Citizenship and ESG. Sustainability 2022, 14
- Levy, J.,2021, UX Strategy: How to Devise Innovative Digital Products that People Want,

2nd ed., O'Reilly Media

- Mersino, C., 2015, Agile Project Management, Vitality Chicago
- Micheli, P. et al. (2019) 'Doing Design Thinking: Conceptual Review, Synthesis, and Research Agenda', Journal of Product Innovation Management, 36(2), pp. 124–148. doi: 10.1111/jpim.12466.
- Nadkarni, S. and Prügl, R. (2020) 'Digital transformation: a review, synthesis and opportunities for future research', Management Review Quarterly. doi: 10.1007/s11301-020-00185-7.
- Rahwan, I. et al. (2019) 'Machine behaviour', Nature, 568(7753), pp. 477–486. doi: 10.1038/s41586-019-1138-y.
- Raisch, S. and Krakowski, S. (2020) 'Artificial Intelligence and Management: The Automation-Augmentation Paradox', Academy of Management Review, pp. 192–210. Available at: https://0-search-ebscohost-com.pugwash.lib.warwick.ac.uk/login.aspx?direct=true&db=bth&AN=148105785&site=bsi-live.
- Sharp, H., Preece, J., & Rogers, Y., 2019, Interaction Design: Beyond Human-Computer Interaction, 5th Edition, Wiley
- Stevenson, R., McMahon, S.R., Letwin, C. et al. Entrepreneur fund-seeking: toward a theory of funding fit in the era of equity crowdfunding. Small Bus Econ (2021). https://doi.org/10.1007/s11187-021-00499-0
- Talafidaryani, M., Jalali, S. M. J. and Moro, S. (2021) 'Digital transformation: Toward new research themes and collaborations yet to be explored', Business Information Review, 38(2), pp. 79–88. doi: 10.1177/0266382120986035.
- Verhoef, P. C. et al. (2021) 'Digital transformation: A multidisciplinary reflection and research agenda', Journal of Business Research, 122, pp. 889–901. doi: 10.1016/j.jbusres.2019.09.022.
- Yong K, Sauer SJ, Mannix EA. Conflict and Creativity in Interdisciplinary Teams. Small Group Research. 2014;45(3):266-289

Research element

Students will be exposed to design thinking, systems models of creativity and innovation, user interaction desisign and other related theories and frameworks that we will revisit throughout the term. The module will challenge students to transfer these theories into practice and/or developing new theories / concepts while considering. The final assessment will challenge students to evaluate their group's interdisciplinary team work and their specific digital innovations through the lens of the theories they have been exposed to, including ethical frameworks.

Interdisciplinary

Students will be working in interdisciplinary teams, supported by staff from many disciplines in response to a brief set by Warwick's incubator 'Creative Features' in partnership with the Student Enterprise Fund

Subject specific skills

Acquire practical skills related to developing a digital innovation concept, prototyping and pitching the idea to investors.
Develop design and ideation skills with an ethical framework in mind.
Transfer of theories into practice and/or developing new theories / concepts.

Transferable skills

Working as part of an interdisciplinary team
Effective project management
Effective communication of an idea/concept

Study

Teaching split

Provider	Weighting
Computer Science	40%
Warwick Business School	40%
Liberal Arts	8%
Statistics	8%

Study time

Type	Required
Lectures	9 sessions of 2 hours (12%)
Other activity	20 hours (13%)
Private study	52 hours (35%)
Assessment	60 hours (40%)
Total	150 hours

Private study description

Working on independent tasks as part of an interdisciplinary team
Research into the theories and frameworks introduced
Working towards the individual assessed component

Other activity description

Students working together as an interdisciplinary team without lecturers present.

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Assessment group A1

	Weighting	Study time
Group presentation of the pitch	30%	20 hours

A group presentation of the pitch, i.e. of the proposal in response to a competition.
The group will be assessed as a group but there will be an opportunity for peer reflection to inform an individual's final grade. This is intended to ensure that work is divided equitably across all members of the group and each group member has the same opportunities to contribute.

	Weighting	Study time
Individual critical reflection	70%	40 hours

An individual critical reflection written as a scholarly blog

Assessment group R1

	Weighting	Study time
Individual critical reflection (reassessment)	100%	

An individual critical reflection written as a scholarly blog

Feedback on assessment

Oral and written feedback for the Presentation.
Individual written feedback for the Individual critical reflection

Availability

Courses

This module is Core optional for:

- Year 3 of ULFA-C1A6 Undergraduate Biochemistry with Industrial Placement (MBio)

This module is Option list B for:

- UBSA-C700 Undergraduate Biochemistry
  - Year 3 of C700 Biochemistry
  - Year 3 of C700 Biochemistry

- ULFA-C1A2 Undergraduate Biochemistry (MBio)
  - Year 3 of C1A2 Biochemistry
  - Year 3 of C700 Biochemistry
- Year 4 of ULFA-C702 Undergraduate Biochemistry (with Placement Year)
- UBSA-3 Undergraduate Biological Sciences
  - Year 3 of C100 Biological Sciences
  - Year 3 of C100 Biological Sciences
- Year 3 of ULFA-C1A1 Undergraduate Biological Sciences (MBio)
- Year 4 of ULFA-C113 Undergraduate Biological Sciences (with Placement Year)
- Year 3 of ULFA-C1A5 Undergraduate Biological Sciences with Industrial Placement (MBio)
- UBSA-C1B9 Undergraduate Biomedical Science
  - Year 3 of C1B9 Biomedical Science
  - Year 3 of C1B9 Biomedical Science
  - Year 3 of C1B9 Biomedical Science
- ULFA-C1A3 Undergraduate Biomedical Science (MBio)
  - Year 3 of C1A3 Biomedical Science
  - Year 3 of C1B9 Biomedical Science
- Year 3 of ULFA-C1A7 Undergraduate Biomedical Science with Industrial Placement (MBio)
- ULFA-CB18 Undergraduate Biomedical Science with Placement Year
  - Year 4 of CB18 Biomedical Science with Placement Year
  - Year 4 of CB18 Biomedical Science with Placement Year
  - Year 4 of CB18 Biomedical Science with Placement Year
- Year 3 of ULFA-B140 Undergraduate Neuroscience (BSc)
- Year 3 of ULFA-B142 Undergraduate Neuroscience (MBio)
- Year 3 of ULFA-B143 Undergraduate Neuroscience (with Industrial Placement) (MBio)