**Modal Logic and its Applications**

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|  | **Course code:** 30690562 |
|  | **Instructor:** Jeremy Seligman |

**Instructor**

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**Course Description**

### Among branches of modern logic, modal logic provides a nice balance of expressivity and complexity, allowing it to be applied widely and extensively in many fields ranging from humanities to software design. In this course, ideas and methods of modal logic will be introduced along with its famous applications in modeling time, knowledge, necessity, and social behaviors. In this thread, student will be led into environments similar to research, in which ideas and needs from theoretical side and practical side frequently interact. Pointers will be given to standard textbooks/handbooks as well as notable papers, and with knowledge and skills introduced in this course, students with further interests should in principle be able to explore by their own. This course aims to student who more or less have learnt some logic, but this is not strictly required.

**Prerequisites:**

No mandatory prerequisites required. Students are expected to have a certain understanding of the language and semantics of propositional and predicate logic, be able to correctly use mathematical concepts such as sets, graphs, relations, and functions, and be interested in philosophical issues and willing to participate in discussions.

**References**

van Benthem, J. Modal Logic for Open Minds (2010). CSLI Press. Blackburn, Patrick; de Rijke, Maarten; and Venema, Yde (2001) Modal Logic. Cambridge University Press. Hughes, G. E., and Cresswell, M. J. (1996) A New Introduction to Modal Logic. Routledge.