

Machine Learning for Data Scientists

Module Information

2022.01, Approved

Summary Information

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|---------------------|--------------------------------------|
| Module Code | 7126COMP |
| Formal Module Title | Machine Learning for Data Scientists |
| Owning School | Computer Science and Mathematics |
| Career | Postgraduate Taught |
| Credits | 20 |
| Academic level | FHEQ Level 7 |
| Grading Schema | 50 |

Teaching Responsibility

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|-----------------------------------|
| LJMU Schools involved in Delivery |
| Computer Science and Mathematics |

Learning Methods

| Learning Method Type | Hours |
|----------------------|-------|
| Lecture | 22 |
| Practical | 33 |

Module Offering(s)

| Display Name | Location | Start Month | Duration Number Duration Unit |
|--------------|----------|-------------|-------------------------------|
| SEP-CTY | CTY | September | 12 Weeks |

Aims and Outcomes

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| Aims | To consolidate and extend prior learning and experience of data science by exploring predictive analytics through the application of machine learning to data sets To build experience in the process of an analytical exercise |
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After completing the module the student should be able to:

Learning Outcomes

| Code | Number | Description |
|------|--------|---|
| MLO1 | 1 | Formulate and construct an appropriate predictive analytical modelling task |
| MLO2 | 2 | Critically evaluate the outcomes of a predictive analytical modelling task |
| MLO3 | 3 | Formulate and construct an appropriate ensemble analytical modelling task |
| MLO4 | 4 | Critically evaluate the outcomes of a ensemble analytical modelling task |

Module Content

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|------------------------|---|
| Outline Syllabus | Review Predictive Modelling Kohonen Self-Organising Maps (SOM) Support Vector Machines Review Binary Decision Trees Model Ensembles Bootstrap Aggregating (Bagging) Boosting Adaboost Stumping Random Forests Stochastic Gradient Boosting Heterogenous Ensembles Interpreting Model Ensembles Case studies in Machine Learning & Predictive Analytics e.g. Text Mining, Sentiment Analysis |
| Module Overview | |
| Additional Information | This is a practical module that generates effective analytical modelling experience, thus developing real hands-on experience of data science applications. |

Assessments

| Assignment Category | Assessment Name | Weight | Exam/Test Length (hours) | Module Learning Outcome Mapping |
|---------------------|---------------------------|--------|--------------------------|---------------------------------|
| Practice | Predictive Modelling Task | 40 | 0 | MLO1, MLO2 |
| Technology | Ensemble Modelling Task | 60 | 0 | MLO3, MLO4 |

Module Contacts