

Summary Information

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| Module Code | 7162SPOSCI |
| Formal Module Title | Molecular Exercise Physiology |
| Owning School | Sport and Exercise Sciences |
| Career | Postgraduate Taught |
| Credits | 20 |
| Academic level | FHEQ Level 7 |
| Grading Schema | 50 |

Teaching Responsibility

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|-----------------------------------|
| LJMU Schools involved in Delivery |
| Sport and Exercise Sciences |

Learning Methods

| Learning Method Type | Hours |
|----------------------|-------|
| Lecture | 12 |
| Practical | 16 |

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 | Nowadays, cutting-edge research in exercise physiology seeks mechanistic understanding and so relies heavily on molecular techniques. This module is aimed at providing you with the knowledge and skills to contribute to this exciting area of research. Work within the Research Institute for Sport and Exercise Sciences has pioneered the application of omic techniques in exercise physiology, and this module principally provides training in omic analyses at DNA, mRNA, protein and metabolite levels. The module is delivered online using live sessions and pre-recorded content, and includes practical training in bioinformatics. |
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After completing the module the student should be able to:

Learning Outcomes

| Code | Number | Description |
|------|--------|--|
| MLO1 | 1 | Demonstrate aptitude and an ability to operate at a professional level in laboratories or other complex/specialised contexts |
| MLO2 | 2 | Synthesise ideas or information in innovative ways to generate transformative solutions or construct arguments that integrate and extend knowledge |
| MLO3 | 3 | Demonstrate deep theoretical understanding of exercise physiology, e.g. encompassing molecular mechanisms and whole-body integrative physiology |
| MLO4 | 4 | Demonstrate competency in research governance, including principals of ethic research and laboratory safety |
| MLO5 | 5 | Develop critical responses to existing theoretical discourses, methodologies or practices and suggest new concepts or approaches |

Module Content

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|------------------------|---|
| Outline Syllabus | Introduction to Molecular Exercise Physiology and omicsCell signallingGeneticsTranscriptomicsProteomicsMetabolomicsIntroduction to RIntroduction to MoTrPAC |
| Module Overview | This module aims to provide the knowledge and practical skills to contribute to this exciting area of research. It will also provide training in traditional and contemporary protein analysis. |
| Additional Information | This module provides an introduction to Molecular Exercise Physiology and research using omic techniques |

Assessments

| Assignment Category | Assessment Name | Weight | Exam/Test Length (hours) | Module Learning Outcome Mapping |
|---------------------|---------------------|--------|--------------------------|---------------------------------|
| Report | Lab report | 30 | 0 | MLO1, MLO4 |
| Report | Experimental design | 70 | 0 | MLO2, MLO3, MLO5 |

Module Contacts

Module Leader

| Contact Name | Applies to all offerings | Offerings |
|--------------|--------------------------|-----------|
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| Jatin Burniston | Yes | N/A |
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Partner Module Team

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| Contact Name | Applies to all offerings | Offerings |
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