

Summary Information

Module Code	7505CEBMOL
Formal Module Title	Advanced Laboratory Skills
Owning School	Pharmacy & Biomolecular Sciences
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Giles Watts	Yes	N/A

Module Team Member

Contact Name	Applies to all offerings	Offerings
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Partner Module Team

Contact Name	Applies to all offerings	Offerings
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Teaching Responsibility

LJMU Schools involved in Delivery
LJMU Partner Taught

Partner Teaching Institution

Institution Name
CARE Fertility

Learning Methods

Learning Method Type	Hours
Lecture	14
Practical	18
Workshop	8

Module Offering(s)

Offering Code	Location	Start Month	Duration
JAN-PAR	PAR	January	12 Weeks

Aims and Outcomes

Aims	In this module, you will advance your laboratory skills through practical and workshop-based sessions. This module aims to provide practical knowledge and experience in handling gametes and embryos, culturing, assessing and grading embryos using standard incubation and time-lapse imaging systems and in more advanced technologies such as gamete and embryo cryopreservation, micromanipulation (ICSI and embryo biopsy) and the use of a laser.
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Learning Outcomes

After completing the module the student should be able to:

Code	Description
MLO1	Critically evaluate the latest methodologies for cryopreservation of oocytes, sperm, embryos of all stages and ovarian and testicular tissue.
MLO2	Demonstrate extensive practical and theoretical understanding of oocyte, sperm and handling and evaluation using traditional and novel methods.
MLO3	Critically review embryo evaluation, monitoring, and research approaches in clinical embryology.
MLO4	Demonstrate proficiency in laboratory skills and ART, particularly gamete micromanipulation, intracytoplasmic sperm injection (ICSI), and embryo grading.

Module Content

Outline Syllabus

• Cryobiology and cryopreservation (of oocytes and embryos) • Oocyte retrieval (the laboratory side) and, oocyte and embryo selection • Sperm handling for IVF and ICSI treatment • Micromanipulation in ART: • Intracytoplasmic sperm injection (ICSI) • Embryo biopsy for PGT • Assisted hatching (AH) • Time-lapse embryo monitoring • Advanced methods for embryo grading, ranking and selection • Research-orientated approach to the practice of assisted conception.

Module Overview

Additional Information

This module will provide students with a practical understanding of the practices in IVF laboratories and the role of the embryologist. Specialised equipment in a dedicated training centre will be accessible for students and the opportunity to compare and operate different types of equipment and devices used in IVF facilities. All lectures and practicals will be covered by experts in their respective fields who will develop student practical knowledge and experience relating to advanced techniques and how these techniques are employed throughout clinical embryology, both in the clinical and academic setting. Students will be provided access to the clinical IVF laboratory for observational sessions, where possible. Assessment of the literature will also allow students to develop and demonstrate a deep understanding of specific principles and applications of ART.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Learning Outcome Mapping
Practice	Laboratory proficiency	50	5	MLO4
Centralised Exam	Examination	50	3	MLO1, MLO2, MLO3