

CH970-10 Polymers in the Real World

26/27

Department

Chemistry

Level

Taught Postgraduate Level

Module leader

Paul Wilson

Credit value

10

Module duration

20 weeks

Assessment

100% coursework

Study location

University of Warwick main campus, Coventry

Description

Introductory description

The module runs through term 1 & 2 with seminars delivered by internal researchers (PhD, PDRA, ECFs) and external professionals (e.g. industrial polymer scientists). Before each lecture you will write a 500 word 'mini-essay' on the topic to be covered in the seminar. This should include 3 questions to be asked and discussed with the speaker and 3 primary references (research articles) from the literature. Finally, you will prepare a poster on a research topic covered during the seminar series and present this at a module symposium. You will also be expected to attend the department of Chemistry external seminar series.

[Module web page](#)

Module aims

This module aims to demonstrate current and real-world applications of polymeric materials that have been described in other modules of the Polymer Chemistry taught master program and rationalize how different properties are required for different applications. This module will be delivered by internal and invited external lecturers from industry and academia.

Topics covered include: Polymers in medicine, polymers in energy, advanced polymer processing methods, polymer composite materials, polymers in 'everyday' applications, renewable materials, sustainability.

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.

The lectures/seminars will be given by a combination of internal and external academic and industrial visitors. The topics of the lectures will cover a selection from the following subjects.

- Renewable Materials
- Polymers in Medicine and Healthcare
- Polymer Therapeutics
- Polymers in Energy Solutions
- Sustainability
- Polymers Used for Security
- Advanced Polymer Processing Methods
- Polymer Composite Materials, Lithography and Microelectronics
- Polymers in Everyday Applications
- Patents and Licensing in Polymer Industry
- How to Start Up Your Own Spin-off Company
- Insights of Scientific Publishing

Learning outcomes

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

- Understand the industrial importance of polymers in a range of areas.
- Demonstrate a wider knowledge of the current state-of-the art in polymer chemistry research
- Display a broad knowledge on different applications of polymers.
- To understand the wider impacts of research science in the field of polymer chemistry.

Indicative reading list

[Reading lists can be found in Talis](#)

Subject specific skills

Key Skills:

Demonstrate a successful literature search to select primary source relating to lecture contents.

Discuss a range of applications of polymeric materials

Communicate verbally and in writing

Manage time effectively

Cognitive Skills:

To follow the lectures and interact by asking questions.

Subject-Specific/Professional Skills:

Produce clearly written and original scientific reports.

Research and reference relevant literature.

Transferable skills

1 Critical thinking

- Recognise patterns, themes and key messages from sometimes confused and incomplete data.
- Make informed decisions on the value of a range of sources allowing an evidence based conclusion based on this analysis.

3 Self-awareness

- Actively seek opportunities for personal development in the context of employment and life.
- Aware of personal strengths and emotional intelligence
- Reflect on learning, seeking feedback on and evaluating personal practices, strengths and opportunities for personal growth.

4 Communication

- Communicate orally in a clear and sensitive manner which is appropriately varied according to different audiences.
- Written: Present arguments, knowledge and ideas, in a range of formats. Active listening: questioning, reflecting, summarising.

6 Information literacy (research skills)

- Critical awareness of how information is gathered, used, managed and synthesised.
- Understanding of the relative value of different sources and the importance of provenance.
- The systematic collection, analysis and evaluation of information in the investigation of a topic.

9 Ethical values

- Committed to living ethically and behaving consistent with the Warwick Guiding Principles.

11 Professionalism

- Prepared to operate autonomously.
- Aware of how to be efficient and resilient.
- Manages priorities and time.
- Self-motivated, setting and achieving goals, prioritising tasks.

12 Organisational awareness

- Understanding of business, government and third sector issues and priorities.
- Awareness of the responsibilities of organisations in society.
- Understanding organisational norms of behaviour

Study

Study time

Type	Required
Seminars	10 sessions of 2 hours (20%)
Total	100 hours

Type	Required
Other activity	2 hours (2%)
Private study	78 hours (78%)
Total	100 hours

Private study description

78h including; literature searching, reading and writing for preparation of the pre-seminar essay, poster research and presentation reports.

Other activity description

Poster presentations

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 A6

	Weighting	Study time	Eligible for self-certification
Assessment component			
Poster Presentation	30%		No
Poster presentation on a topic covered in the course.			

Reassessment component is the same

Assessment component		
Coursework	70%	Yes (extension)
Some 500-word reports including 3 questions to be asked to the speaker on the topic, to be submitted before each lecture/seminar.		

Weighting

Study time

Eligible for self-certification

Reassessment component is the same

Feedback on assessment

Timely written feedback for each pre-lecture report

Timely written feedback on poster presentations

Availability

Courses

This module is Core for:

- Year 1 of TCHS-F1PK Postgraduate Taught Polymer Chemistry
- Year 1 of TCHA-F1PW Postgraduate Taught Polymer Science

This module is Optional for:

- Year 1 of TCHA-F1PX Postgraduate Taught Analytical and Polymer Science

This module is Option list A for:

- Year 1 of TCHA-F1PW Postgraduate Taught Polymer Science