

Module Specification

Module Title	Advanced Topics in Organic Chemistry	Module Code	CHE405U			
Credit Value	15	Level	7	Mode of Delivery	On Campus	Semester B

Pre-requisite modules	Co-requisite modules	Overlapping modules
SBC703		

1) Content Description

Provide a description of the module, as it will appear in the Module Directory and on the Student Information System (approx. 70-80 words).

The module is designed to give a detailed understanding of stereochemistry, an appreciation of the relevance of this topic to the activity and regulatory requirements of small-molecule pharmaceuticals, and a detailed knowledge of the methods available to generate single enantiomers of pharmaceutical relevance. Furthermore the course will provide an overview of the principles, practicalities and applications of contemporary catalytic methodology of relevance to drug discovery and manufacture within the pharmaceutical industry. The aim is to gain sufficient knowledge to be able to appraise and develop synthetic strategies for the synthesis of complex organic molecules using catalytic methodology.

2) Module Aims

Specify the aims of the module, i.e. the broad educational purposes for offering this module.

The module is designed to give students an understanding of advanced concepts in contemporary asymmetric synthesis.

3) Learning Outcomes

Identify the learning outcomes for this module, i.e. knowledge, skills and attributes to be developed through completion of this module. Outcomes should be referenced to the relevant [QAA benchmark statements](#) and the [Framework for Higher Education Qualifications in England, Wales and Northern Ireland \(2008\)](#). The [SEEC Credit Level Descriptors for Further and Higher Education 2003](#) and [Queen Mary Statement of Graduate Attributes](#) should also be used as a guiding framework for curriculum design.

Academic Content:	
A1	Develop understanding of organic and inorganic reaction mechanisms, synthetic design and stereochemistry.
A2	Be able to manipulate complex molecular structures using a variety of symbolic representations.
A3	Become familiar with the true breadth of modern synthetic chemistry and gain an understanding of the power and limitations of recently discovered techniques

Disciplinary skills - able to:	
B1	
B2	
B3	

Attributes:	
C1	Enhance ability for logical thinking, deduction and interpretation of results presented in current research topics.
C3	Be able to follow modern trends in synthetic chemical research through becoming familiar with material published in the recent primary literature.
C4	
C5	

4) Reading List

Provide an indicative reading list for the module. This should include key texts and/or journals but should not be an exhaustive list of materials.

“Organic Chemistry” Clayden, Greeves, Warren and Wothers, Oxford, ISBN 0198503466

“Principles of Asymmetric Synthesis” Gawley and Aubé, Elsevier Science, ISBN 0080418759

“Asymmetric Synthesis” Aitken and Kilenyi, Blackie A & P, ISBN 0751401900

“Chirality in Industry,” Collins, Sheldrake and Crosby, Wiley, ISBN 0471935956

“Organometallics in Synthesis,” Schlosser, Wiley, ISBN 0471969613

“Catalytic Asymmetric Synthesis,” Ojima, Wiley, ISBN 0471298050

“Homogeneous Transition-metal Catalysis- a gentle art” Masters, Chapman and Hall, 1981, (QD505MAS) ISBN 0412221209

“Palladium Reagents and Catalysts” J Tsuji, Wiley, 2004, ISBN 0470850337

In addition regular reference will be made to the primary literature.

Teaching and Learning Profile

Provide details of the method of delivery (lectures, seminars, fieldwork, practical classes, etc.) used to enable the achievement of learning outcomes and an indicative number of hours for each activity to give an overall picture of the workload a student taking the module would be expected to undertake. This information will form the Key Information Set for each undergraduate programme and will be used to populate the KIS widget found on the QMUL programme information pages. More information can be found [online](#) about KIS. You may also wish to refer to the [QAA guidance on contact hours](#) when completing this section.

Activity Type	KIS Category	Time Spent (in hours)
Practical Classes and workshops	Scheduled	
Lecture	Scheduled	
Fieldwork	Scheduled	

Total		
Specify the total module notional study hours. This should be a total of the hours given for each activity. The notional study hours for each academic credit point is 10. A 15 credit point module therefore represents 150 notional study hours.		
Activity Type	Total Time Spent (in hours)	Percentage of Time Spent
Scheduled learning and teaching		
Placement		
Independent Study		
Total		
Use the information provided in the box above to specify the total time spent and the percentage time spent in each category of teaching and learning activity.		

Assessment Profile

Provide details of the assessment methods used to assess the achievement of learning outcomes.

Description of Assessment	Assessment Type	KIS Category	Duration / Length	Percentage Weighting	Final element of assessment?	Qualifying Mark
Coursework	Written assignment, including Essay	Coursework		10	No	
Examination	Written Exam	Written	2 h 30 m	90	Yes	

Qualifying mark: A specified minimum mark that must be obtained in one or more elements of assessment in order to pass a module. **This is in addition to, and distinct from, the requirement to achieve a pass in the module mark to pass the module.**

Reassessment

Provide details of the reassessment methods used, specifying whether reassessment is either standard reassessment or synoptic reassessment.

- Standard Reassessment
 Synoptic Reassessment

Synoptic reassessment details (if you have indicated synoptic reassessment above, please give details)		
Brief Description of Assessment	Assessment Type	Duration / Length of Examination / Coursework
Resit Exam	Written Exam	2 h 30 m