

Unit Outline (Higher Education)

Institute / School: Institute of Innovation, Science and Sustainability

Unit Title: MEDICINAL CHEMISTRY

Unit ID: SCCHM3001

Credit Points: 15.00

Prerequisite(s): (SCBCH2001)

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 019907

Description of the Unit:

Medicinal chemistry is a multidisciplinary unit that applies the principles of chemistry and biochemistry to understand the actions of drugs and therapeutic agents in the body. Students will study aspects of the discovery, development, characterization and synthesis of drugs; bio-molecular targets of drugs in the human body; the delivery, distribution and metabolism of drugs; and approaches to drug design, including computational and screening methodologies.

Grade Scheme: Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience: Student is not undertaking work experience in industry.

Placement Component: No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory	■	■	■	■	■	■
Intermediate	■	■	■	■	■	■

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Advanced	■	■	✓	■	■	■

Learning Outcomes:

Knowledge:

- K1.** Describe the process of drug development from concept to market
- K2.** Explain how drugs and targets interact at the molecular level, and how this relates to the activity of drugs in the body
- K3.** Describe the processes of drug delivery, absorption, distribution, metabolism and elimination in the body, and explain how the drug structure relates to these processes

Skills:

- S1.** Predict the impact of molecular structural changes on drug functionality
- S2.** Analyse and evaluate scientific data
- S3.** Design, plan and perform experiments in a safe manner and accurately record and analyse laboratory observations

Application of knowledge and skills:

- A1.** Appreciate the role medicinal chemistry plays in helping to solve problems in daily life, science and society
- A2.** Source, collate, synthesise and critically evaluate medicinal chemistry information from a range of relevant sources and present this in an appropriate form

Unit Content:

- Drug targets
- Pharmacokinetics
- Drug discovery
- Structure-activity relationships
- Rational drug design
- Synthetic routes

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**tttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	<p>Students will demonstrate the ability to effectively communicate, inter-act and work with others both individually and in groups. Students will be required to display skills in-person and/or online in:</p> <ul style="list-style-type: none"> • Using effective verbal and non-verbal communication • Listening for meaning and influencing via active listening • Showing empathy for others • Negotiating and demonstrating conflict resolution skills • Working respectfully in cross-cultural and diverse teams. 	K1, K2, K3, A1, S2, S3, A1, A2	AT1, AT2, AT3
FEDTASK 2 Leadership	<p>Students will demonstrate the ability to apply professional skills and behaviours in leading others. Students will be required to display skills in:</p> <ul style="list-style-type: none"> • Creating a collegial environment • Showing self -awareness and the ability to self-reflect • Inspiring and convincing others • Making informed decisions • Displaying initiative 	K1, K2, K3, A1, S2, S3, A1, A2	AT3
FEDTASK 3 Critical Thinking and Creativity	<p>Students will demonstrate an ability to work in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in:</p> <ul style="list-style-type: none"> • Reflecting critically • Evaluating ideas, concepts and information • Considering alternative perspectives to refine ideas • Challenging conventional thinking to clarify concepts • Forming creative solutions in problem solving. 	K1, K2, K3, A1, S2, S3, A1, A2	AT3, AT4

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 4 Digital Literacy	<p>Students will demonstrate the ability to work fluently across a range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in:</p> <ul style="list-style-type: none"> • Finding, evaluating, managing, curating, organising and sharing digital information • Collating, managing, accessing and using digital data securely • Receiving and responding to messages in a range of digital media • Contributing actively to digital teams and working groups • Participating in and benefiting from digital learning opportunities. 	K1, K2, K3, A1, S2, S3, A1, A2	AT1, AT2, AT3
FEDTASK 5 Sustainable and Ethical Mindset	<p>Students will demonstrate the ability to consider and assess the consequences and impact of ideas and actions in enacting ethical and sustainable decisions. Students will be required to display skills in:</p> <ul style="list-style-type: none"> • Making informed judgments that consider the impact of devising solutions in global economic environmental and societal contexts • Committing to social responsibility as a professional and a citizen • Evaluating ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Embracing lifelong, life-wide and life-deep learning to be open to diverse others • Implementing required actions to foster sustainability in their professional and personal life. 	K1, K2, K3, A1, S2, S3, A1, A2	AT2, AT3

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, S1, S2, A1, A2	Problem solving activities and quizzes associated with the topic content and tutorials.	Tutorial exercises/online tasks/topic quizzes	20-40%
K1, K2, K3, A2	In-depth investigation of one aspect of drug delivery or design	Poster presentation (may include peer assessment)	10-20%
S2, S3	Design and perform laboratory experiments and produce laboratory reports.	Laboratory reports and performance	15-25%
K1, K2, K3, S1, S2	End of semester assessment which may include multiple choice answer, short-answer questions, and extended response questions	Test or examination	30-50%

Adopted Reference Style:

Australian Harvard

Refer to the [library website](#) for more information

Fed Cite - [referencing tool](#)