Course Outline (Higher Education)

School: School of Science, Psychology and Sport

Course Title: MEDICINAL CHEMISTRY

Course ID: SCCHM3001

Credit Points: 15.00

Prerequisite(s): (SCBCH2001)

Co-requisite(s): Nil

Exclusion(s): Nil

ASCED: 019907

Description of the Course:
Medicinal chemistry is a multidisciplinary course 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 course but gained a final mark of 45 per cent or above and submitted all major assessment tasks.

Program Level:

Level of course in Program	AQF Level of Program					
	5	6	7	8	9	10
Introductory						
Intermediate						
Advanced			✔			

Learning Outcomes:

Knowledge:

K1. Explain how drugs and targets interact at the molecular level and how this relates to the activity of drugs in the body

K2. Describe the processes of drug delivery, absorption, distribution, metabolism and elimination in the body

K3. Describe the process of drug development from concept to market

Skills:

S1. Predict the impact of molecular structural changes on drug functionality

S2. Assess the traditional and modern methods used for drug discovery from natural and synthetic lead compounds

S3. Analyse and evaluate scientific data

S4. Use computer based modelling to analyse drug structure

Application of knowledge and skills:

A1. Use a first principles approach to describe the mode of action of a drug and its pharmacokinetics

A2. Evaluate the suitability of synthetic routes for drug production

Course Content:

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

Values:

V1. In this course, students will continue to develop an enquiring and curious attitude to science.

V2. Students will have the opportunity to collaborate with others.

V3. Students will reflect on ethical behaviour and green chemistry principles as they explore the drug design and development process.

V4. As they work through the content students will continue to acquire the ability for reflective, life-long learning.

Graduate Attributes

The Federation University Federation graduate attributes (GA) are entrenched in the Higher Education Graduate Attributes Policy (LT1228). FedUni graduates develop these graduate attributes through their engagement in explicit learning and teaching and assessment tasks that are embedded in all FedUni programs. Graduate attribute attainment typically follows an incremental development process mapped through program progression. **One or more graduate attributes must be evident in the specified learning outcomes and assessment for each FedUni course, and all attributes must be directly assessed in each program**

Graduate attribute and descriptor	Development and acquisition of GAs in the course	
	Learning Outcomes (KSA)	Assessment task (AT#)

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		Learning Outcomes (KSA)	Assessment task (AT#)
GA 1 Thinkers	Our graduates are curious, reflective and critical. Able to analyse the world in a way that generates valued insights, they are change makers seeking and creating new solutions.	S3, A2	AT1, AT2
GA 2 Innovators	Our graduates have ideas and are able to realise their dreams. They think and act creatively to achieve and inspire positive change.	S1, S3	AT1
GA 3 Citizens	Our graduates engage in socially and culturally appropriate ways to advance individual, community and global well-being. They are socially and environmentally aware, acting ethically, equitably and compassionately.	A2	AT1
GA 4 Communicators	Our graduates create, exchange, impart and convey information, ideas, and concepts effectively. They are respectful, inclusive and empathetic towards their audience, and express thoughts, feelings and information in ways that help others to understand.	K1, S3	AT1, AT2
GA 5 Leaders	Our graduates display and promote positive behaviours, and aspire to make a difference. They act with integrity, are receptive to alternatives and foster sustainable and resilient practices.	S3, A2	AT1

Learning Task and Assessment:

Learning Outcomes Assessed	Learning Tasks	Assessment Type	Weighting
K1, K2, K3, S1, S2, S3, S4, A1, A2	Problem solving activities and quizzes associated with the topic content and tutorials.	Tutorial exercises/online tasks/topic quizzes	20-40%
K1, K2, S3	In-depth investigation of one aspect of drug delivery or design	Group poster presentation (may include peer assessment)	10-20%
K1, S1, S2, S3	Design and perform laboratory experiments and produce laboratory reports.	Laboratory reports and performance	15-25%
K1, K2, K3, S1, S2, S3, S4, A1, A2	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