

SEE8003 Skills for Scientists

Course Title:	Skills for Scientists
Course Code:	SEE8003
Course Duration:	One semester
Credit Units:	2
Level:	R8
Medium of Instruction:	English
Prerequisites:	Nil
Precursors:	SEE8001 Postgraduate Seminar or SEE8002 Scientific writing and communication
Equivalent Courses:	Nil
Exclusive Courses:	Nil

Course Aims

The course aims to equip entry-level postgraduate students with the essential skills in conducting high-level research and developing their long term professional career. This includes the shaping of curiosity-driven research aptitude, familiarising with common statistical analyses and data collection, the ability to perform critical thinking and analyses, as well thinking-outside-the-box. It will also consider a range of important transferable skills that are required for careers in industry, government or academia.

Course Intended Learning Outcomes (CILOs)

(state what the student is expected to be able to do at the end of the course according to a given standard of performance)

Upon successful completion of this course, students should be able to:

No.	CILOs
1.	Shape in a systematic manner various fundamental and curiosity-driven research topics, and presenting sound research strategies towards the investigation and solving of these problems. Present original ideas which contain high level of innovation and creativity. These ideas should have strong basis of fundamental science.
2.	Perform statistical analyses using techniques such as confidence intervals, hypothesis testing, and regression, and apply these techniques for their research studies.
3.	Develop transferable skills of relevance to scientists and future careers in industry, government or academia.

Teaching and Learning Activities (TLAs)

(Indicative of likely activities and tasks designed to facilitate students' achievement of the CILOs. Final details will be provided to students in their first week of attendance in this course)

CILO No.	TLAs	Total Hours (if applicable)
CILO 1	Lecture, tutorials	8.5
CILO 2	Lectures, tutorials	8.5
CILO 3	Lectures, tutorials	9

Assessment Tasks/Activities

(Indicative of likely activities and tasks designed to assess how well the students achieve the CILOs. Final details will be provided to students in their first week of attendance in this course)

CILO No.	Type of Assessment Tasks/Activities	Weighting (if applicable)	Remarks
CILO 1	Assignment	30%	
CILO 2	Assignments,	30%	
CILO 3	Report, presentation	40%	

Grading of Student Achievement: Refer to Grading of Courses in the Academic Regulations (Attachment) and to the Explanatory Notes.

Grade P

Student performs all assessment tasks and achieves an overall grading of at least 50% of the total assessment score. He/She has strong sense of ability in identifying various important fundamental problems to be tackled and presenting sound and innovative strategies in solving them. The student is adept in performing statistical analyses on data and able to interpret the implication of data in a critical manner.

Grade F

Student fails to perform all assessment tasks and achieves an overall grading of lower than 50% of the total assessment score. He/She demonstrates weak ability in identifying fundamental problems to be tackled and can only propose superficial solutions. The student is unable to perform statistical analyses on data and interpret the data in a critical manner.

Keyword Syllabus

Research aptitude; Thinking-out-the-box; Experimental design; Data analyses; Ideas incubation; Proposal writing; Project Planning; Time management; Team building; Reflective practice

Recommended Reading

Text(s)

Ronald E. Walpole Raymond Myers Sharon L. Myers Keying E. Ye, Essentials of Probability & Statistics for Engineers & Scientists, Prentice Hall, 2012