

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

Undergraduate Research Opportunities with Mini-conference Experience

Course code	UROP 3200
No. of credits/term	1
Category	Common Core course
Offering semester	Fall, Spring & Summer
Class quota	30 students per semester (due to quota limit, student applications will be reviewed and accepted based on the time supervisors granting endorsement)
Target students	Year 2 Summer or above
Pre-requisite	Completion of TWO UROP 1100 with a Pass OR Completion of UROP 1100 and UROP 2100 with a Pass under the same faculty supervisor
Mode of instruction	Self-learning Project-based supervision
	<i>To enhance student learning, faculty supervisors are recommended to discuss students' research work with students through individual and group meetings and engage them in weekly/bi-weekly research activities.</i>
Remarks	UROP3200 cannot be taken more than once unless failed.

Course Description

This course offers students a platform to gain hands-on research experience and extend their involvement in the Undergraduate Research Opportunities Program (UROP). Students have the opportunity to work on either the same research project or a different project under the supervision of the same faculty supervisor. Students are required to participate in a mini-conference to deliver project presentations and submit a final report. Approval by faculty supervisor(s) is required. Graded P or F.

Course Intended Learning Outcomes (ILOs)

1. Summarize current state of knowledge and write a literature review
2. Identify research niche and problems
3. Design research methods
4. Analyze and interpret data
5. Write a research report and perform an oral presentation accompanied by a poster to deliver research findings
6. Communicate with others having different disciplinary backgrounds

Pre-requisites

- **TWO** passing grades in UROP 1100 **OR** a passing grade in UROP 1100 and UROP 2100



OR



Assessment

The course grade will be in Pass/Fail, which will be based on students' research report and oral and/or poster presentation in a mini-conference to be held at the end of the semester. The description for the Pass / Fail grading system is included in *Appendix 1*. The tentative date for the mini-conference will be announced before the start of each semester. Students and supervisors are expected to reserve their time to join the activity.

Following the new practice in other regular UROP courses, starting from Spring 2022/23, UROP students are expected to complete an online training of "Responsible Conduct of Research" (RCR) as one of the additional compulsory learning activities and assessment.

To reflect on students' learning process and personal growth, students are required to include a **self-reflection report (with the sub-sections of "Lifelong Learning", "Ethical Awareness" and "Others")** in their research reports for supervisors to assess students' competencies based on the 5-point rubrics listed in *Appendix 2*.

A template and suggested contents for the self-reflection report are presented in *Appendix 3*. The self-reflection report should be in at least **three** pages.

Students working in the same team are allowed to submit one final report as a group, with each student indicating his/her part(s) of contribution to the project. **However, the self-reflection report sections are expected to vary from student to student as each student should have their own reflection on their learning experience and strategies adopted throughout the whole project. Students working in group should also submit different posters with different emphasis based on their individual contribution.**

Students should submit their reports in both the **UROP Online System** and **Canvas** for their supervisors' grading. Supervisors should input their students' grades and sub-grades in the **UROP Online System** and input the scores and sub-scores of students' sub-competencies in **Canvas**.

The following table includes the selected assessed sub-competencies (description of the sub-competencies is included in the *Appendix 4*) and how they will be taught or assessed through different assessment items of UROP 3200:

Broad Competencies	Sub-competencies	How each sub-competency will be taught/assessed
Communication	Mode of communication	Students can learn and practise the correct use of language to convey messages in different means of communication, e.g., writing of research papers and delivery of research presentations in mini-conferences. Supervisors will assess the sub-competency based on students' final reports and oral presentations accompanied by a poster .
Personal Development	Lifelong learning	To successfully complete the project, students will learn to be self-initiated in planning and monitoring their learning progress. Supervisors can guide their plan and progress. They can also assess their students' growth and learning progress through the final reports . Students are required to include their reflection under the sub-section of " <i>Lifelong Learning</i> " in their self-reflection reports .
Problem Solving	Evaluation of information and sources	Supervisors will guide their students how to formulate their research projects and questions through critically summarising the literature. They will also provide comments on students' selection and evaluation of the literature. Supervisors will assess students' ability to process information and articulate logical arguments in the final reports and oral presentations accompanied by a poster .
Social Responsibility	Ethical awareness	Before taking this UROP course, students should have completed an online training of "Responsible Conduct of Research" which promotes good practices on conducting research. They will have learnt key principles governing the practice of research from the video training. Supervisors will also instruct students to conduct their research activities in compliance with relevant policies and guidelines, e.g. ethics and safety, if applicable. Students are required to write a sub-section called " <i>Ethical Awareness</i> " under the self-reflection reports .

Below is the summary of assessment in UROP 3200:

No.	Assessment Items	Weighting	Grading Items for Assessing Competencies by Supervisors	Assessed Competencies & Sub-competences
1	Final report	70%	Project report	<ul style="list-style-type: none"> • Communication: Mode of communication • Problem Solving: Evaluation of information and sources
			Self-reflection report	<ul style="list-style-type: none"> • Personal Development: Lifelong learning • Social Responsibility: Ethical awareness
2	Oral and/or poster presentation in mini-conference	30%	Presentation	<ul style="list-style-type: none"> • Communication: Mode of communication • Problem Solving: Evaluation of information and sources
Total		100%	N/A	N/A

Although the assessment of the participation and presentation in the mini-conference only shares 30% of the final grade, students will be required to obtain a passing score of this sub-assessment item in order to pass UROP 3200. Failing this item will lead to a Fail grade of the course.

Appendix 1

Grade Description for the Pass / Fail Grading System for UROP 3200

Components	Percentage	Pass	Fail
Results obtained	30%	Demonstrate understanding of research purpose, knowledge of related work, appropriate research methods and originality, together with some non-trivial insight on the results obtained.	Show failure to understand aims, confusion over plans, research methods, arguments, meanings and the results obtained.
Mastery of the subject area	30%	Demonstrate the ability to recognize the implications of the knowledge learnt and to put it into a broader context. Possess the ability to draw upon different disciplines to provide a clearer and deeper understanding of the subject area in the project.	Fail to demonstrate requisite command of knowledge related to the subject matter and rely heavily on textbooks or resources for development of contents.
Clarity and presentation of the report	40%	Report is well organized and clearly written for most parts. The underlying logic is clearly articulated and easy to follow. Words are chosen that express the intended meaning and support reader comprehension. Diagrams or analyses enhance and clarify the presentation of ideas.	Report lacks an overall organization. Reader has to make a considerable effort to understand the underlying logic and flow of ideas. Diagrams are absent or inconsistent with the text.
Delivery: Oral presentation, contact with audience, timing		Poster covers complete and accurate description of important outcomes. Effective use of charts, graphs, figures etc. Fair use of English and confident. Hold attention by direct eye contact and natural hand gestures. Presentation runs with desired pace and finishes within allocated time.	Information is arranged in confused and unstructured way. Student lacks confidence. Poor use of English. Does not attempt to look at audience at all. Read notes or look at the poster only. Presentation is too short or too long for the allocated time.

Appendix 2

The 5-Point Assessment Rubrics for Competencies

Level	Definition of the 5-point Rubric Scale
5 Exceptional	Demonstrates exceptional competence by articulating an understanding of subject material or applying a skill effectively and in a novel, creative, deeply analytical manner drawing on robust evidence; provides sophisticated reflection or analysis and applies this analysis to another framework or context.
4 Advanced	Demonstrates advanced competence by articulating an understanding of subject material or applying a skill effectively and providing sophisticated reflection or analysis drawing on robust evidence.
3 Competent	Demonstrates competence by articulating an understanding of subject material or applying a skill accurately or appropriately.
2 Emerging	Demonstrates beginning level competence by articulating an understanding of subject material or skills application somewhat accurately or appropriately.
1 Entering	Does not demonstrate competence; does not articulate an understanding of subject material or application of a skill set.

Reference link

Common Core Competencies:

https://uce.ust.hk/web/resources/CC_Competency

Appendix 3

Self-Reflection Report

Course Code:

Course Title:

Course Instructor(s):

Student Name:

Student ID No.:

Submission Date:

1. Lifelong Learning

Below are some open-end questions for students to reflect their learning experience about *"Lifelong Learning"*:

- How do you evaluate your learning experience in UROP 3200 comparing to other lecture-based courses?
- How have you applied the knowledge gained from your previous UROP courses to UROP 3200? What is the effectiveness of the applied knowledge?
- What is/are your goal(s) in the mini-research project? Have you faced any challenges or difficulties which affect the achievement of your goal(s)? How have you tackled them?
- Can you summarize your overall learning experience? How will you apply the knowledge and skills you have learned for continuous improvement and development of autonomous lifelong learning?

2. Ethical Awareness

Below are some open-end questions for students to reflect their learning experience about *"Ethical Awareness"*:

- Can you identify one or two ethical issues that you may face while conducting your research?
- Can you present the issue(s) as problem(s) and provide solution(s)? Problems should be something within your control, and solutions should be specific and address the research aims, design, methodology, datasets, validity or particular issues related to your project. You may choose a suitable set of ethical principles for discussion.

3. Others

Below are some open-end questions for students to reflect their learning experience about *"Others"*:

- What have you learned in the mini-conference in the areas of communication and knowledge in other fields etc?

- How have you applied and integrated academic knowledge from within and outside your Major program(s) or academic area(s)? How did the knowledge enhance your learning experience?
- What challenges have you faced and how did you encounter them?
- How have you solved the problem logically in the project?
- What is(are) the most valuable lesson(s) learned in the course?
- Any other issues you want to share

Competency Development

Describe and rate¹ the skills and competencies you have developed throughout the course.

- a) Communication
(Level: 1 Entering 2 Emerging 3 Competent 4 Advanced 5 Exceptional)
- b) Personal development
(Level: 1 Entering 2 Emerging 3 Competent 4 Advanced 5 Exceptional)
- c) Problem solving
(Level: 1 Entering 2 Emerging 3 Competent 4 Advanced 5 Exceptional)
- d) Social responsibility
(Level: 1 Entering 2 Emerging 3 Competent 4 Advanced 5 Exceptional)
- e) Areas for improvement

Attachment

Please attach any supporting documents, evidence, or artifacts of your learning experience, if applicable.

¹ Please refer to the definition of the 5-point rubric scale of the Common Core Competencies presented in *Appendix 2* and circle the level you have attained.

Appendix 4

Description of Assessed Sub-competencies

Students are expected to develop the following sub-competencies under each of the four broad competencies. Supervisors will evaluate students' performance using a set of generic, standardized 5-point rubrics for each sub-competency.

Broad Competencies	Sub-Competencies	Descriptions of Competencies
Communication	Mode of communication	<ul style="list-style-type: none"> • Use body language to enhance communication • Use a range of modes (e.g. audio, graphics) for communication
Personal Development	Lifelong learning	<ul style="list-style-type: none"> • Design and implement realistic self-directed learning plans • Manage own learning by employing learning techniques and strategies
Problem Solving	Evaluation of information and sources	<ul style="list-style-type: none"> • Identify relevant sources/information • Analyze and synthesize information from sources • Evaluate the quality of information and sources • Provide evidence-based argument • Draw conclusions by synthesizing different skills such as analytical, quantitative reasoning, and critical thinking
Social Responsibility	Ethical awareness	<ul style="list-style-type: none"> • Recognize and address ethical issues as they arise • Explore and evaluate the ethical implications of people's actions