

Annexe A: New/Revised Course Content in OBTL+ Format

Course Overview

The sections shown on this interface are based on the templates [UG OBTL+](#) or [PG OBTL+](#)

If you are revising/duplicating an existing course and do not see the pre-filled contents you expect in the subsequent sections e.g. Course Aims, Intended Learning Outcomes etc. please refer to [Data Transformation Status](#) for more information.

Expected Implementation in Academic Year	2025/2026
Semester/Trimester/Others (specify approx. Start/End date)	Special Term
Course Author * Faculty proposing/revising the course	Richard David Webster
Course Author Email	webster@ntu.edu.sg
Course Title	Professional Attachment
Course Code	CM4082
Academic Units	5
Contact Hours	400
Research Experience Components	Not Applicable

Course Requisites (if applicable)

Pre-requisites	Approval by the Division of Chemistry & Biological Chemistry
Co-requisites	
Pre-requisite to	
Mutually exclusive to	
Replacement course to	
Remarks (if any)	For Year 2 and Year 3 standing students

Course Aims

This 10-week Professional Attachment is offered as an Interdisciplinary Collaborative Core (ICC) course for all BSc in Chemistry & Biological Chemistry undergraduate students matriculated in AY2021-22 or later who are not intending to take up the longer 10 AU, 20-week Professional Internship (PI) and instead plan to take up the 10 AU final year research project (FYP).

The purpose of this Professional Attachment is to enable the application of knowledge and skills you have learned in a real world work environment. You will gain relevant exposures and develop practical industry experiences and skills that will facilitate your career decision and future transition into your selected vocation. The attachment will help you develop professional competencies that will enhance your employability and lifelong learning capabilities to support your career and life endeavors and enhance your readiness for the future workplace.

Course's Intended Learning Outcomes (ILOs)

Upon the successful completion of this course, you (student) would be able to:

ILO 1	Apply knowledge and skills relevantly and appropriately in the workplace. [Apply relevant science and engineering knowledge, logical reasoning, mathematical and computational skills you have gained to analyse, model and solve problems].
ILO 2	Identify your own competency gaps at the internship workplace.
ILO 3	Evaluate and develop personal learning and development pathways towards bridging competency gaps identified in point (2) above, i.e., identify technical skills needed to solve problems.
ILO 4	Develop and apply strategies to solve problems effectively.
ILO 5	Evaluate resources and develop insights to make informed judgements and recommendations. Able to source relevant scientific/non-scientific information and conduct effective discussion.
ILO 6	Discuss the internship organisation's nature and context of business.
ILO 7	Reflect on the organisational culture at the internship organisation.
ILO 8	Appraise the significance and impact of the project/work/assignment undertaken at the internship organisation. [Perform rigorous information search and review of literature that is related to the preparation of the work. Information is well organised and presented in written report with appropriate layout].
ILO 9	Describe the career pathways within the internship organisation as well as the broader industry.
ILO 10	Reflect on personal and professional development needs within the internship organisation as well as in the broader industry and set strategic goals for advancing along an intended career path.
ILO 11	Apply time and task management strategies effectively. Project execution is well planned and quality work is produced. [Able to put interpreted and discussed results into context, with good understanding of the underlying assumptions and limitation while being rationale to various approaches. Logical statements are used to conclude the outcome of the project with proposed solutions for future work].
ILO 12	Apply effective written and oral communication skills in professional settings when connecting with relevant stakeholders. [Able to convey scientific and non-scientific ideas effectively in writing and oral to professionals and to the general public.]
ILO 13	Assimilate into the work environment (people, team, hierarchy) and function effectively [Taking initiative to communicate with team/project leader and working closely with colleagues. Able to contribute as a valued team member in the work environment.]

ILO 14	Tolerate ambiguity and handle anxiety.
ILO 15	contribute proactively to the internship organisation.
ILO 16	Demonstrate responsibility, integrity and professionalism in the fulfilment of all workplace and internship requirements. Adhere to the code of conduct, rules and regulations. Behaving ethically and morally when performing a task.
ILO 17	demonstrate the perseverance to learn, overcome and improve.
ILO 18	Use tools that enable and facilitate effective project/work/assignment related to Chemistry and Biological Chemistry undertaken at the internship organisation. [Demonstrate the ability to analyse and interpret information. Apply fundamental scientific concepts to evaluate results and formulate appropriate action plans.] [Able to give a clear and concise journal, with logical technical points conveyed. Appropriate choice of words, understandable, proper pace, good timing and informative e-journal materials].

Course Content

This attachment programme, being a work-integrated education course, has its educational content embedded within the work environment and assignments that students will undertake at each internship organisation. For this reason, the attachment job scope will be evaluated by the course instructor/coordinator using the following criteria: a. It is relevant to the student's discipline of study; b. It provides the required attachment duration; c. It accommodates NTU's attachment periods; d. It provides sufficient structure and rigour that will enable students to achieve the intended learning outcomes listed above; e. It provides the appropriate workload for the stipulated attachment period; f. It enhanced the career prospects of the student; g. The attachment workplace is safe and conducive for student learning and development; h. The attachment workplace is equipped with the necessary tools and resources for the attachment work; i. The internship organisation has standing policies to safeguard the welfare of interns; j. The internship organisation supervisor possesses the competencies, experience, and commitment to provide guidance to the students; k. The internship organisation will use NTU's attachment assessment scheme for students.

Reading and References (if applicable)

List of readings and references are dependent on the organization requirements. Your supervisor will recommend the list of readings and references related to your work. NTU Student Internship Handbook Please refer to the respective Professional Internship/Attachment Teamsites via NTU Studentlink for the Internship Handbook. NTU Work-Integrated Education Blog – WIE ARISE <https://blogs.ntu.edu.sg/wie-arise/> Harvard Business Review: 6 Ways to Make the Most of Your Internship <http://bit.ly/2J81BU2> Huffington Post: 21 Ways to Make the Most of Your Internship <http://bit.ly/2kK6Fz5> Vault: How to Successfully Manage your Assignments: <http://bit.ly/2LNfrIX>

Planned Schedule

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
1	-	-		In-person	Weekly updating logbook.
2	-	-		In-person	Weekly updating logbook.
3	Review of E Journal 1 and performance in first 3 weeks.			In-person	Weekly updating logbook.
4	-	-		In-person	Weekly updating logbook.
5	-	-		In-person	Weekly updating logbook.
6	Review of E Journal 2 and performance in first 6 weeks.			In-person	Weekly updating logbook.
7	-	-		In-person	Weekly updating logbook.
8	-	-		In-person	Weekly updating logbook.
9	-	-		In-person	Weekly updating logbook.
10	Submission of final E Journal			In-person	

Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
Internship	<p>An attachment is an experiential learning programme done in a professional setting. Students will be placed in an organisation for the entire attachment period and will undertake work assignments and/or projects in the organisation. It is through such work in the real-world environment where students learn and develop the competencies and experiences relevant to the intended learning outcomes of this course.</p> <p>Each student will be supervised by (1) an Organisation Supervisor at the internship organisation, and (2) a Faculty Supervisor in NTU.</p> <p>The Organisation Supervisor will be the key person working with and interacting with the student on a day-to-day basis. The Organisation Supervisor will be one providing guidance and feedback to the student on a regular basis.</p> <p>The Faculty Supervisor from NTU will serve to facilitate student's learning and progress through interactions via E Journal submissions, email, phone, and/or visits. The Faculty Supervisor will also be each student's first point of contact for any matters arising from the attachment. Student can also contact the respective Internship Programme Manager at NTU's Career and Attachment Office as an alternative.</p>

Assessment Structure

Assessment Components (includes both continuous and summative assessment)

No.	Component	ILO	Related PLO or Accreditation	Weightage	Team/Individual	Rubrics	Level of Understanding
1	Continuous Assessment (CA): Others([group or individual projects/evaluations] Assessment of Work in the Organisation (AWO))	1, 4, 5, 11, 12, 13, 14, 15, 16, 17, 18	Competency 4-6 1-3,7 only for selected internship Creativity Communications Character Civic Mindedness	50	Individual	Holistic	Relational
2	Continuous Assessment (CA): Others([assignments (e.g. term paper, essay)] E Journal 1)	1, 6, 7	Competency 4-6 1-3,7 only for selected internship Creativity Communications Character Civic Mindedness	10	Individual	Holistic	Relational
3	Continuous Assessment (CA): Others([assignments (e.g. term paper, essay)] E Journal 2)	2, 4, 5	Competency 4-6 1-3,7 only for selected internship Creativity Communications Character Civic Mindedness	10	Individual	Holistic	Relational
4	Continuous Assessment (CA): Others([assignments (e.g. term paper, essay)] Final E Journal)	3, 8, 9, 10, 12	Competency 4-6 1-3,7 only for selected internship Creativity Communications Character Civic Mindedness	30	Individual	Holistic	Relational

Description of Assessment Components (if applicable)

Formative Feedback

Continuous feedback on progress and performance can be expected from student's attachment organisation supervisor.

Student's faculty supervisor will also provide feedback through the student's attachment E Journal submissions and/or site visits.

NTU Graduate Attributes/Competency Mapping

This course intends to develop the following graduate attributes and competencies (maximum 5 most relevant)

Attributes/Competency	Level
Collaboration	Intermediate
Communication	Intermediate
Creative Thinking	Intermediate
Curiosity	Intermediate
Decision Making	Intermediate

Course Policy

Policy (Academic Integrity)

Good academic work depends on honesty and ethical behaviour. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust and Justice are at the core of NTU's shared values. As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion and cheating. If you are uncertain of the definitions of any of these terms, you should go to the academic integrity website for more information. On the use of technological tools (such as Generative AI tools), different courses / assignments have different intended learning outcomes. Students should refer to the specific assignment instructions on their use and requirements and/or consult your instructors on how you can use these tools to help your learning. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

Policy (General)

NA

Policy (Absenteeism)

NA

Policy (Others, if applicable)

Diversity and Inclusion Policy

Integrating a diverse set of experiences is important for a more comprehensive understanding of science and engineering.

It is our goal to create an inclusive and collaborative learning environment that supports a diversity of perspectives and learning experiences. That honours your identities; including ethnicity, gender, socioeconomic status, sexual orientation, religion or ability.

To help accomplish this:

- If you are neuroatypical or neurodiverse, have dyslexia or ADHD (for example), or have a social anxiety disorder or social phobia;
- If you feel your performance in the course is being impacted by your experiences outside of class;

- If something was said in the course (by anyone, including instructor/supervisor) that made you uncomfortable.

Please e-mail to your Associate Chair (Students & Continuing Education) at ac-cceb-stud@ntu.edu.sg about how we can help facilitate your learning experience.

As a participant in course discussions you should also strive to honour the diversity of your classmates. You can do this by; using preferred pronouns and names; being respectful of others opinions and actively making sure all voices are being heard; and refraining from the use of derogatory or demeaning speech or actions.

All members of the course are expected to strictly adhere to the student code of conduct (<https://www.ntu.edu.sg/life-at-ntu/student-life/student-conduct>) . If you witness something that goes against this or have any other concerns, please speak to your instructors or a faculty member.

Last Updated Date: 25-04-2025 05:42:16

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