香港城市大學
City University of Hong Kong

**CIR-MAJ**

# Curriculum Information Record for a Major/Degree

## Department of Biomedical Sciences

## Effective from Semester A 2025/26

## For Students Admitted from Semester A 2024/25 / Changed to the Major with Catalogue Term Semester A 2025/26

The information provided on this form is the official record of the major/degree. It will be used for City University's database, various City University publications (including websites) and documentation for students and others as required.

In specifying the curriculum for a major/degree, "catalogue term" is used to determine the set of curriculum requirements that a student is following. By mapping the student record and the version of curriculum rules applicable, the graduation requirements of individual students will be evaluated accordingly. The catalogue terms of curriculum requirements that students will follow are summarized below (BUS/04/A5R):

| Requirements | Catalogue Term |
|---|---|
| a) Common Requirements<br>• Gateway Education<br>• University Language<br>• College/School requirement | The same as student's admission term |
| b) Major | |
| • For normative 4-year degree students who will join the majors allocation exercise | Effective term of the declared major |
| • For advanced standing students and 4-year degree students who already have a major at the time of admission | The same as student's admission term |
| • For students who have changed major | Effective term of the changed major |
| c) Stream | Follow the effective term of the associated major |

***Prepared / Last Updated by***

| | | | |
|---|---|---|---|
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**City University of Hong Kong**

**Curriculum Information Record for a Major/Degree**

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## Part I Major/Degree Overview

**Major** (in English) : Biological Sciences
(in Chinese) : 生物科學

**Degree** (in English) : Bachelor of Science
(in Chinese) : 理學士

**Award Title**[#] (in English) : Bachelor of Science in Biological Sciences
(in Chinese) : 理學士(生物科學)

*# Please make reference to the "Guidelines on Award Titles" approved by the Senate when proposing new award titles or changes to existing award titles (Senate/86/A5R).*

## 1. Normal and Maximum Period of Study

| | **Normative 4-year Degree** | **Advanced Standing I** (Note 1) |
|---|---|---|
| Normal period of study | 4 years | 3 years |
| Maximum period of study | 8 years | 6 years |

Note 1: For students with recognised Advanced Level Examination or equivalent qualifications.

## 2. Minimum Number of Credit Units Required for the Award and Maximum Number of Credit Units Permitted

| Degree Requirements | Normative 4-year Degree | Advanced Standing I |
|---|---|---|
| Gateway Education requirement * | 30 credit units | 21 credit units |
| College/School requirement * | Not Applicable | Not Applicable |
| Major requirement | 72 credit units<br>(Core: 57<br>Elective:15) | 69 credit units<br>(Core: 57<br>Elective: 12) |
| Free electives / Minor (if applicable) | 18 credit units | 0 credit units |
| **Minimum number of credit units required for the award** | **120 credit units** | **90 credit units** |
| **Maximum number of credit units permitted** | **144 credit units** | **114 credit units** |

** For details, please refer to the Curriculum Information Record for Common Requirements.*

## 3. Aims of Major

The Biological Sciences major aims to nurture students to embark on scientific research, educational, professional or technical career after graduation. We provide a rigorous, broad-spectrum curriculum combined with specialization in major fields of biology such as cancer biology, nanobiotechnology, regenerative medicine, microbiology and neurobiology. The programme presents an in-depth study of biomedical and life sciences, with courses ranging from bioinformatics to biochemistry, genetics, cellular & molecular biology and immunology. With the two tailor-made practical courses as well as opportunities in research rotations and projects, students will gain a thorough understanding of how science is done with advanced technologies including omics & genome editing and state-of-the-art equipment in our research laboratories. It also nurtures students who are interested in pursuing postgraduate research training and undertaking a broad range of science-based careers.

**Human and Artificial Intelligence Stream**

The Human and Artificial Intelligence stream aims to equip students with a comprehensive understanding of the intersection between neuroscience and artificial intelligence (AI). Through a multidisciplinary approach, students will explore the principles, methods, and applications of AI in neuroscience, fostering critical thinking and analytical skills. This stream emphasizes integrating knowledge from neuroscience and AI to address complex biological questions and develop innovative solutions. While current AI algorithms mimic synaptic plasticity, advancing AI requires more efficient learning models inspired by human intelligence. This stream combines theoretical knowledge with hands-on experience, providing practical expertise in utilizing AI techniques for biological research. Our holistic approach prepares students for careers at the forefront of this rapidly evolving field, equipping them with combined knowledge and practice in biology (specifically neuroscience) and engineering.

## 4. Intended Learning Outcomes of Major (MILOs)

*(Please state what the student is expected to be able to do on completion of the major according to a given standard of performance.)*

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

| *No.* | *MILOs* | *Discovery-enriched curriculum related learning outcomes (please tick where appropriate)* | | |
|---|---|---|---|---|
| | | *A1* | *A2* | *A3* |
| 1. | Explain biological phenomena from the molecular to cellular basis of life. | √ | √ | |
| 2. | Explain biological phenomena based on lectures and observations in the laboratory. | √ | √ | |
| 3. | Design experiment and evaluate experimental data to test hypotheses, and to create innovative and practical solutions. | √ | √ | √ |
| 4. | Demonstrate good time management and problem- solving skills, and effectively communicate scientific ideas in both written and oral formats. | √ | √ | |
| 5. | Demonstrate the ability to read, understand, and critically review scientific information | √ | √ | |
| 6. | Accomplish laboratory-based or problem-based tasks independently. | | √ | √ |
| 7. | Apply the broad-based foundation and latest advances in the knowledge of biological sciences to real world problems. | √ | √ | |
| 8. | Develop strategies for acquisition, application and synthesis of knowledge in the biological sciences. | √ | √ | |
| 9. | Apply biological knowledge to address bioethical issues and to understand the role of science in society and the ethical conduct of science. | √ | √ | |

*A1:* *Attitude*
*Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.*

*A2:* *Ability*
*Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.*

*A3:* *Accomplishments*
*Demonstrate accomplishments of discovery/innovation/creativity through producing/constructing creative works/new artefacts, effective solutions to real-life problems or new processes.*

## Part II Major Requirement

*(The catalogue term of the major requirement that students will follow will be the effective term of the declared/allocated major.*

*For normative 4-year degree students who will join the majors allocation exercise, the catalogue term of major requirement will be one year after admission.*

*For advanced standing students and 4-year degree students who already have a major at the time of admission, the catalogue term of major requirement will be the same as their admission term.)*

### 1. Core Courses (57 credit units)

| Course Code | Course Title | Level | Credit Units | Remarks |
|---|---|---|---|---|
| BMS1901 | Calculus For Life Sciences | B1 | 3 | |
| CHEM2013 | Microbiology | B2 | 3 | |
| BMS2202 | Diversity of Life and Evolution | B2 | 3 | |
| BMS2204 | Diversity of Life and Microbiology Laboratory | B2 | 2 | |
| BMS2205 | Essential Techniques in Biomedical Sciences | B2 | 4 | This course is equivalent to BMS2203 Laboratory Course for Cell Biology and Biochemistry. |
| BMS2901 | Introductory Biostatistics and Data Analysis | B2 | 3 | |
| BMS2004 | Biochemistry | B2 | 3 | |
| BMS2005 | Human Physiology | B2 | 3 | |
| BMS2206 | Cell Biology | B2 | 3 | This course is equivalent to BMS2201 Molecular Biology of the Cell. |
| BMS3203A | Genetics | B3 | 3 | |
| BMS3204 | Molecular Biology | B3 | 3 | This course is equivalent to CHEM3017 Molecular Biology. |
| BMS3205 | Omics, Genome Editing and Advanced Techniques for Biomedical Research | B3 | 2 | |
| CHEM3068 | General Ecology | B3 | 4 | |
| BMS3301 | Bioinformatics | B3 | 3 | |
| BMS4007 | Pharmacology and Toxicology | B4 | 3 | |
| BMS4008 | Clinical Immunology | B4 | 3 | |
| BMS4102 | Technology for Regenerative Medicine | B4 | 3 | |
| BMS4301 | Cancer Biology | B4 | 3 | |
| BMS4303 | Neuroscience | B4 | 3 | |

**2. Stream Core Course (15 credit units) (Human and Artificial Intelligence Stream)**

On top of the core courses (57 credit units) listed above, students who opt for Human and Artificial Intelligence Stream are required to take the following stream core courses (15 credit units), in total 72 credit units for core courses.

| Course Code | Course Title | Level | Credit Units | Remarks |
|---|---|---|---|---|
| NS2003 | Introduction to Artificial Intelligence with Brain Computing and Application | B2 | 3 | |
| NS3003 | Ethical Application of Artificial Intelligence in Biological Sciences and Healthcare | B3 | 3 | |
| NS4002 | A Mathematical Introduction to Neural Networks | B4 | 3 | |
| NS4003 | Practical Artificial Intelligence Internship in Life Sciences and Biotech | B4 | 6 | |

## 3. Electives

**Normative 4-year Degree: 15 credit units**

**Advanced Standing I: 12 credit units**

**Note:**

1. **You are required to register either BMS4206 Final Year Project in Biomedical Research OR BMS4304 Industrial Attachment: Biotechnology and Health Sciences as one of the Major Elective courses to fulfill university degree requirement.**
2. **Students who opt for Human and Artificial Intelligence Stream are not required to take any electives.**

| Course Code | Course Title | Level | Credit Units | Remarks |
|---|---|---|---|---|
| BMS1701A | Biomedical Research – Rotation Project I (Theme A) | B1 | 1 | |
| BMS1701B | Biomedical Research – Rotation Project I (Theme B) | B1 | 1 | |
| BMS1701C | Biomedical Research – Rotation Project I (Theme C) | B1 | 1 | |
| NS1001 | Brain Structure and Function | B1 | 3 | |
| BMS2002 | Pathophysiology | B2 | 3 | |
| BMS2003B | Clinical Chemistry | B2 | 2 | |
| BMS2007 | Human Anatomy | B2 | 3 | |
| BMS2008B | Hematology I | B2 | 2 | |
| BMS2301A | Biomedical Research – Rotation Project II (Theme A) | B2 | 1 | |

| Course Code | Course Title | Level | Credit Units | Remarks |
|---|---|---|---|---|
| BMS2301B | Biomedical Research – Rotation Project II (Theme B) | B2 | 1 | |
| BMS2301C | Biomedical Research – Rotation Project II (Theme C) | B2 | 1 | |
| NS2001 | Cognition and Behavior | B2 | 3 | |
| NS2003 | Introduction to Artificial Intelligence with Brain Computing and Application | B2 | 3 | Will be counted as Stream Core course for those students declared Human and Artificial Intelligence Stream |
| BMS3002B | Cellular Pathology | B3 | 2 | |
| BMS3003B | Advanced Clinical Chemistry | B3 | 2 | |
| BMS3006B | Transfusion Science and Technology | B3 | 2 | |
| BMS3007 | Ethics and Practice in Medical Laboratory | B3 | 3 | |
| BMS3011B | Hematology II | B3 | 2 | |
| BMS3101 | Cell Transport and Signalling | B3 | 3 | |
| NS3001 | Technologies in Neuroscience | B3 | 3 | |
| NS3002 | Learning and Memory | B3 | 3 | |
| NS3003 | Ethical Application of Artificial Intelligence in Biological Sciences and Healthcare | B3 | 3 | Will be counted as Stream Core course for those students declared Human and Artificial Intelligence Stream |
| BMS4001 | Medical Informatics and Laboratory Management | B4 | 3 | |
| BMS4003B | Clinical Biochemistry and Molecular Diagnostics | B4 | 2 | |
| BMS4004B | Advanced Celluar Pathology | B4 | 2 | |
| BMS4005B | Medical Virology | B4 | 2 | |
| BMS4206 | Final Year Project in Biomedical Research | B4 | 8 | Not to be taken by students who opt for Human and Artificial Intelligence Stream |
| BMS4304 | Industrial Attachment: Biotechnology and Health Sciences | B4 | 8 | Not to be taken by students who opt for Human and Artificial Intelligence Stream |

| Course Code | Course Title | Level | Credit Units | Remarks |
|---|---|---|---|---|
| CHEM4078 | Aquatic Ecology | B4 | 4 | Course offered in alternate years |
| NS4001 | Brain Disorder and Therapy | B4 | 3 | |
| NS4002 | A Mathematical Introduction to Neural Networks | B4 | 3 | Will be counted as Stream Core course for those students declared Human and Artificial Intelligence Stream |
| NS4003 | Practical Artificial Intelligence Internship in Life Sciences and Biotech | B4 | 6 | Will be counted as Stream Core course for those students declared Human and Artificial Intelligence Stream |

## Part III Admission Requirements for Entry to the Major, if any

*(Admission requirements here refers to specific requirements for students already admitted to the College/School/Department with an undeclared major. Academic units can state the prerequisites required for admission to the major.)*

Nil

## Part IV Accreditation by Professional / Statutory Bodies

Nil

## Part V Additional Information

Nil

**Part VI Curriculum Map**

*(The curriculum map shows the mapping between courses and the MILOs. It should cover all courses designed specifically for the major.)*

| Course | | | MILOs | | | | | | | | | DEC | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Code** | **Title** | **Credit** | **M 1** | **M 2** | **M 3** | **M 4** | **M 5** | **M 6** | **M 7** | **M 8** | **M 9** | **A 1** | **A 2** | **A 3** |
| **Core Courses** | | | | | | | | | | | | | | |
| BMS1901 | Calculus For Life Sciences | 3 | | | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ |
| CHEM2013 | Microbiology | 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS2202 | Diversity of Life and Evolution | 3 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS2204 | Diversity of Life and Microbiology Laboratory | 2 | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| BMS2205 | Essential Techniques in Biomedical Sciences | 4 | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| BMS2901 | Introductory Biostatistics and Data Analysis | 3 | | | | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ |
| BMS2004 | Biochemistry | 3 | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS2005 | Human Physiology | 3 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS2206 | Cell Biology | 3 | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | |
| BMS3203A | Genetics | 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS3204 | Molecular Biology | 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS3205 | Omics, Genome Editing and Advanced Techniques for Biomedical Research | 2 | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | |
| CHEM3068 | General Ecology | 4 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS3301 | Bioinformatics | 3 | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS4007 | Pharmacology and Toxicology | 3 | | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS4008 | Clinical Immunology | 3 | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS4102 | Technology for Regenerative Medicine | 3 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS4301 | Cancer Biology | 3 | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS4303 | Neuroscience | 3 | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| NS2003 | Introduction to Artificial Intelligence with Brain | 3 | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| NS3003 | Ethical Application of Artificial Intelligence in Biological Sciences and Healthcare | 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| NS4002 | A Mathematical Introduction to Neural Networks | 3 | | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| NS4003 | Practical Artificial Intelligence Internship in Life Sciences | 6 | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| **Electives** | | | | | | | | | | | | | | |
| BMS1701A | Biomedical Research – Rotation Project I (Theme A) | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS1701B | Biomedical Research – Rotation Project I (Theme B) | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS1701C | Biomedical Research – Rotation Project I (Theme C) | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |

| Course | | | MILOs | | | | | | | | | DEC | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Code** | **Title** | **Credit** | **M 1** | **M 2** | **M 3** | **M 4** | **M 5** | **M 6** | **M 7** | **M 8** | **M 9** | **A 1** | **A 2** | **A 3** |
| NS1001 | Brain Structure and Function | 3 | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS2002 | Pathophysiology | 3 | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS2003B | Clinical Chemistry | 2 | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS2007 | Human Anatomy | 3 | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS2008B | Hematology I | 2 | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS2301A | Biomedical Research – Rotation Project II (Theme A) | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS2301B | Biomedical Research – Rotation Project II (Theme B) | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS2301C | Biomedical Research – Rotation Project II (Theme C) | 1 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| NS2001 | Cognition and Behavior | 3 | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| NS2003 | Introduction to Artificial Intelligence with Brain | 3 | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| BMS3002B | Cellular Pathology | 2 | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS3003B | Advanced Clinical Chemistry | 2 | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS3006B | Transfusion Science and Technology | 2 | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS3007 | Ethics and Practice in Medical Laboratory | 3 | | | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | |
| BMS3011B | Hematology II | 2 | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS3101 | Cell Transport and Signalling | 3 | ✓ | | | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ |
| NS3001 | Technologies in Neuroscience | 3 | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| NS3002 | Learning and Memory | 3 | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| NS3003 | Ethical Application of Artificial Intelligence in Biological | 3 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS4001 | Medical Informatics and Laboratory Management | 3 | | | | ✓ | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ |
| BMS4003B | Clinical Biochemistry and Molecular Diagnostics | 2 | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS4004B | Advanced Celluar Pathology | 2 | ✓ | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS4005B | Medical Virology | 2 | | ✓ | | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS4206 | Final Year Project in Biomedical Research | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| BMS4304 | Industrial Attachment: Biotechnology and Health Sciences | 8 | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| CHEM4078 | Aquatic Ecology | 4 | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | |
| NS4001 | Brain Disorder and Therapy | 3 | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | |
| NS4002 | A Mathematical Introduction to Neural Networks | 3 | | ✓ | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| NS4003 | Practical Artificial Intelligence Internship in Life Sciences | 6 | ✓ | | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

*A1: Attitude*
*Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.*
*A2: Ability*

*Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.*

*A3: Accomplishments*

*Demonstrate accomplishments of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.*