

**SYLLABUSES FOR THE DEGREE OF
BACHELOR OF BIOMEDICAL SCIENCES (BBIOMEDSC)**
in disciplines as determined by the Senate from time to time

These syllabuses are applicable for candidates admitted under the 4-year BBiomedSc curriculum in the academic year 2025-26 and thereafter.

1. Candidates must enroll in no fewer than 240 credits of courses in accordance with the regulations and the syllabuses.
 2. Major
At the end of the first year, candidates shall declare their major. During their year two, three, and four of studies, candidates are required to complete one of the following majors: (1) Biomedical Research, (2) Bioinformatics, (3) Clinical Sciences, (4) Health Technology, unless otherwise permitted by the Board of the Faculty. The list of courses required for each major is set out below.
 3. If candidates choose not to declare any major, they will be graduated with a Biomedical Sciences degree, i.e., without a major, by completing the list of courses set out below.
 4. To fulfill the graduation requirement of this degree as specified by the Board of the Faculty in accordance with UG 5 of the Regulations for First Degree Curricula, candidates must satisfactorily complete the credits of courses include the following areas of study: English language enhancement (12 credits), Chinese language enhancement (6 credits) and Common Core courses (36 credits), and successful completion of a capstone experience and any other non-credit bearing courses as required by the University.
 5. The courses listed in the syllabus will not necessarily be offered every year; from time to time, depending on the exigencies of staffing, additional courses may be offered.
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A. Common Requirements for Biomedical Sciences Degree and ALL Majors

1. UG 5 requirements (54 credits)
 - (i) Common Core Courses (36 credits)

Candidates are required to complete 6 Common Core courses (6-credit each) by the end of the second year, comprising at least one and not more than two courses from each Area of Inquiry with not more than 24 credits of courses being selected within one academic year except where candidates are required to make up for failed credits.

- (ii) Language Enhancement Courses (18 credits)

Candidates are required to complete 2 English Language courses (6-credit each), including 6 credits of Core University English⁴ and 6 credits of English-in-the-Discipline course, and 1 Chinese Language course (6-credit)⁵, within the first and second years of the curriculum in accordance with the Regulations for First Degree Curricula of the University.

⁴ Candidates who have achieved Level 5 or above in English Language in the Hong Kong Diploma of Secondary Education Examination, or equivalent, are exempted from this requirement, and Core University English is optional. Those who do not take this course should take an elective course in lieu, see Regulation UG6.

⁵ Candidates are required to successfully complete the 6-credit Faculty-specific Chinese language enhancement course, except for:

2. Minors and/or Electives (90 credits)

Apart from taking the 96 credits of courses for the Biomedical Sciences major as specified in point 2 below, plus the Common Core courses (36 credits) and the Language Enhancement courses (18 credits), students can plan their study with the remaining credits (i.e. 90 credits) in various manners, subject to time-table constraints and approval of the host faculties. Those interested in enriching and deepening their understanding on topics in the field of biomedical sciences may opt to take a minor and/or electives offered within the BBiomedSc curriculum, while those who would like to broaden their knowledge base outside the realm of biomedical sciences can consider a minor and/or electives offered in other curricula.

3. Non-credit Bearing Course

Students are required to complete and pass the non-credit bearing course “UG5E1001 Introduction to the Constitution, the Basic Law and the National Security Law” under Regulation UG5(e) of the Regulations for First Degree Curricula.

B. Courses for Biomedical Sciences Degree and ALL Majors (96 credits)

Students are required to complete a total of 96 credits of courses for the Biomedical Sciences degree or any one of the 4 majors namely (1) Biomedical Research, (2) Bioinformatics, (3) Clinical Sciences, (4) Health Technology. This includes the completion of 6 common foundation courses during 1st and 2nd year of study, along with specific requirements of 1 laboratory course, 7 core / elective courses and a final year project to be completed in 2nd and 4th year of study.

1. Foundation Courses (36 credits)⁶

		Year	Credits
BBMS1003	Perspectives in Biochemistry	1	6
BBMS2013/BIOF2013	Biomedical Statistics	2	6

Any 4 from the list below

		Year	Credits
BBMS1001	Introduction to Human Anatomy and Physiology	1	6
BBMS1011	Fundamental Biomedical Laboratory Techniques	1	6
CHEM1042	General Chemistry I (for students with HKDSE	1	6
or	Chemistry) or		
CHEM1041	Foundations of Chemistry (for students without HKDSE Chemistry)		
BBMS1021/BIOF1001	Introduction to Biomedical Data Science	1	6
COMP1117	Computer Programming	1	6
MATH1013	University mathematics II	1	6

- (a) Putonghua-speaking students who should take CUND9002 Practical Chinese and Hong Kong Society or CUND9003 Cantonese for Non-Cantonese Speaking Students; and
- (b) students who have not studied Chinese language during their secondary education or who have not attained the requisite level of competence in the Chinese language to take CEMD9008 Practical Chinese for Biomedical Sciences Students should write to the Faculty Board to apply to be exempted from the Chinese language requirement, and
 - (i) take a 6-credit Cantonese or Putonghua language course offered by the School of Chinese especially for international and exchange students; OR
 - (ii) take an elective course in lieu.

⁶ Foundation courses are common among all candidates with BBiomedSc degree *in disciplines as determined by the Senate from time to time.*

2. Specific Requirements for Individual Majors

(i) Major in Biomedical Research (60 credits)

- Core courses (18 credits)

		Year	Credits
BBMS2003	Human Genetics	2	6
BBMS2007	Essential Molecular Biology	2	6
BBMS2011	Research Methods in Medicine and Health Sciences	2	6

- Laboratory course (6 credits) *[Any 1 from the list below]*

		Year	Credits
BBMS3004	Molecular Diagnostics Laboratory	3	6
BBMS3111	Experimental Design and Approaches for Biomedical Science	3	6

- Disciplinary elective courses (24 credits) *[Any 4 from the list below]*

		Year	Credits
BBMS2005	Biomedical Pharmacology	2/3	6
BBMS2008	Contemporary Topics in Biomedical Technology	2/3	6
BBMS2009	Introduction to Clinical Research	2/3	6
BBMS2010	Fundamentals of Clinical Trial Management	2/3	6
BBMS3001	Medical Microbiology	3/4	6
BBMS3002	Molecular Biology of the Cell	3/4	6
BBMS3003	Mechanism and Pathology of Diseases	3/4	6
BBMS3005	Infection and Immunity	3/4	6
BBMS3007	Cancer Biology	3/4	6
BBMS3008	Essential Proteomics	3/4	6
BBMS3009	Genome Science	3/4	6
BBMS3010	Emerging Infections	3/4	6
BBMS3011	Molecular Neuroscience	3/4	6
BBMS3012	Stem Cell Biotechnologies in Regenerative Medicine	3/4	6
BIOC3605	Sequence Bioinformatics	3/4	6
BBMS4003	Developmental Genetics	4	6
BBMS4005	Biopharmaceutical Research and Development	4	6
BIOC4612	Molecular Biology of the Gene	4	6

- *Project: Capstone Experience (12 credits) [Any 1 from the list below]*

		Year	Credits
BBMS4001	Final Year Project (Biomedical Research)	4	12
BBMS4012	Innovation Team Project	4	12

(ii) Major in Bioinformatics (60 credits)

- Core courses (24 credits)

		Year	Credits
BBMS2021/BIOF2001	Artificial Intelligence in Medicine	2	6
BBMS2022/BIOF2014	Statistical Modelling for Bioinformatics	2	6
MATH2014	Multivariable Calculus and Linear Algebra	2	6
BBMS3021/BIOF3001	Big Data Biomedical Informatics	3/4	6

- Laboratory course (6 credits) [*Any 1 from the list below*]

		Year	Credits
BBMS3022/BIOF3002	Genome Sequencing and Analysis	3	6
BBMS3023/BIOF3003	Digital Health	3	6

- Disciplinary elective courses (24 credits) [*Any 4 from the list below*]

		Year	Credits
BBMS2003	Human Genetics	2/3	6
BBMS2007	Essential Molecular Biology	2/3	6
BBMS2009	Introduction to Clinical Research	2/3	6
BBMS2011	Research Methods in Medicine and Health Sciences	2/3	6
BIOC2600	Basic Biochemistry	2/3	6
COMP2113	Programming Technologies	2/3	6
COMP2119	Introduction to Data Structures and Algorithms	2/3	6
BBMS3008	Essential Proteomics	3/4	6
BBMS3009	Genome Science	3/4	6
BBMS4004	Public Health Genetics	3/4	6
BIOC3605	Sequence Bioinformatics	3/4	6
BBMS3024/BIOF3004	Bioinformatics Internship	3/4	6
BBMS3025/BIOF3005	Structural Bioinformatics	3/4	6
BBMS3026/BIOF3006	Biomedical Software Systems	3/4	6
BBMS3027/BIOF3007	Clinical Bioinformatics	3/4	6
BBMS4022/BIOF4002	Global Health Informatics	3/4	6
BBMS4023/BIOF4003	Biomedical Image Informatics	3/4	6
COMP3314	Machine Learning	3/4	6
COMP3317	Computer Vision	3/4	6
COMP3353	Bioinformatics	3/4	6
STAT3600	Linear Statistical Analysis	3/4	6
STAT3612	Statistical Machine Learning	3/4	6
STAT4602	Multivariate Data Analysis	3/4	6
STAT4609	Big Data Analytics	3/4	6

- *Project: Capstone Experience (12 credits) [Any 1 from the list below]*

		Year	Credits
BBMS4021/BIOF4001	Final Year Project (Bioinformatics)	4	12
BBMS4012	Innovation Team Project	4	12

(iii) Major in Clinical Sciences (60 credits)

- Core courses (30 credits)

		Year	Credits
BBMS2004	Human Anatomy	2	6
BBMS2006	Physiological Basis of Health	2	6
BBMS2009	Introduction to Clinical Research	2	6
BBMS3019	Topographic Anatomy and Anatomy Education	3/4	6
BBMS3032	Advanced Human Physiology	3/4	6

- Laboratory course (6 credits) *[Any 1 from the list below]*

		Year	Credits
BBMS3004	Molecular Diagnostics Laboratory	3	6
BBMS3031	Clinical Diagnostics Laboratory	3	6

- Disciplinary elective courses (12 credits) *[Any 2 from the list below]*

		Year	Credits
BBMS2003	Human Genetics	2/3	6
BBMS2005	Biomedical Pharmacology	2/3	6
BBMS2010	Fundamentals of Clinical Trial Management	2/3	6
BBMS2011	Research Methods in Medicine and Health Sciences	2/3	6
BBMS3001	Medical Microbiology	3/4	6
BBMS3003	Mechanisms and Pathology of Diseases	3/4	6
BBMS3005	Infection and Immunity	3/4	6
BBMS3007	Cancer Biology	3/4	6
BBMS3010	Emerging Infections	3/4	6
BBMS3011	Molecular Neuroscience	3/4	6
BBMS3012	Stem Cell Biotechnologies in Regenerative Medicine	3/4	6
BBMS3033	Medical Humanities and Ethics	3/4	6
BBMS3027/BIOF3007	Clinical Bioinformatics	3/4	6
BBMS4023/BIOF4003	Biomedical Image Informatics	3/4	6
EXSC2003	Exercise Physiology	1/2/3/4	6
EXSC2008	Physical and Health Benefits of Exercise	1/2/3/4	6
EXSC3014	Rehabilitation Science	1/2/3/4	6
EXSC3018	Biological Basis of Exercise and Health	1/2/3/4	6
EXSC3019	Exercise and Chronic Diseases	1/2/3/4	6
GHAD1001	Foundations in Global Health and Development	1/2/3/4	6
GHAD1004	Introduction to Epidemiology and Biostatistics	1/2/3/4	6
GHAD3001	Global Health Policy	1/2/3/4	6
GHAD4002	The Role and Impact of Private Sector in Health and Development	1/2/3/4	6

- *Project: Capstone Experience (12 credits) [Any 1 from the list below]*

		Year	Credits
BBMS4031	Final Year Project (Clinical Sciences)	4	12
BBMS4012	Innovation Team Project	4	12

(iv) Major in Health Technology (60 credits)

- Core courses (30 credits)

		Year	Credits
BBMS2007	Essential Molecular Biology	2	6
BBMS2008	Contemporary Topics in Biomedical Technology	2	6
BBMS2021/BIOF2001	Artificial Intelligence in Medicine	2	6
BBMS3041	Regulatory Compliance and Quality Management for Health Technology	3/4	6
BBMS4042	Advanced Topics in Health Technology	3/4	6

- Laboratory course (6 credits) *[Any 1 from the list below]*

		Year	Credits
BBMS3004	Molecular Diagnostics Laboratory	3	6
BBMS3023/BIOF3003	Digital Health	3	6

- Disciplinary elective courses (12 credits) *[Any 2 from the list below]*

		Year	Credits
BBMS2010	Fundamentals of Clinical Trial Management	2/3	6
BMED2600	Biomechanics for Biomedical Engineering	2/3	6
BBMS3012	Stem Cell Biotechnologies in Regenerative Medicine	3/4	6
BBMS3018	Biomechanics and Biomedical Technologies	3/4	6
BBMS3042	Synthetic and Systems Biology for Health Technology	3/4	6
BBMS4005	Biopharmaceutical Research and Development	3/4	6
BBMS3023/BIOF3003	Digital Health	3/4	6
BBMS3024/BIOF3004	Bioinformatics Internship	3/4	6
BBMS3025/BIOF3005	Structural Bioinformatics	3/4	6
BBMS4023/BIOF4003	Biomedical Image Informatics	3/4	6
BMED3600	Biomaterials Science and Engineering	3/4	6
BMED4601	Biomaterials Design and Applications	4	6
BMED4604	Cell and Tissue Engineering	4	6

- *Project: Capstone Experience (12 credits) [Any 1 from the list below]*

		Year	Credits
BBMS4041	Final Year Project (Health Technology)	4	12
BBMS4012	Innovation Team Project	4	12

(v) Biomedical Sciences Degree (60 credits)

(applicable to students who choose not to declare any major)

- Core courses (18 credits) *[Any 3 from the list below]*

		Year	Credits
BBMS2003	Human Genetics	2	6
BBMS2004	Human Anatomy	2	6
BBMS2006	Physiological Basis of Health	2	6
BBMS2007	Essential Molecular Biology	2	6
BBMS2008	Contemporary Topics in Biomedical Technology	2	6
BBMS2009	Introduction to Clinical Research	2	6
BBMS2011	Research Methods in Medicine and Health Sciences	2	6
BBMS2021/BIOF2001	Artificial Intelligence in Medicine	2	6
BBMS2022/BIOF2014	Statistical Modelling for Bioinformatics	2	6
BBMS3019	Topographic Anatomy and Anatomy Education	3/4	6
BBMS3021/BIOF3001	Big Data Biomedical Informatics	3/4	6
BBMS3032	Advanced Human Physiology	3/4	6
BBMS3041	Regulatory Compliance and Quality Management for Health Technology	3/4	6
BBMS4042	Advanced Topics in Health Technology	3/4	6

- Laboratory course (6 credits) *[Any 1 from the list below]*

		Year	Credits
BBMS3004	Molecular Diagnostics Laboratory	3	6
BBMS3022/BIOF3002	Genome Sequencing and Analysis	3	6
BBMS3023/BIOF3003	Digital Health	3	6
BBMS3031	Clinical Diagnostics Laboratory	3	6
BBMS3111	Experimental Design and Approaches for Biomedical Science	3	6

- Disciplinary elective courses (24 credits) *[Any 4 from the list below]*

		Year	Credits
BBMS2005	Biomedical Pharmacology	2/3	6
BBMS2010	Fundamentals of Clinical Trial Management	2/3	6
BBMS3001	Medical Microbiology	3/4	6
BBMS3002	Molecular Biology of the Cell	3/4	6
BBMS3003	Mechanisms and Pathology of Diseases	3/4	6
BBMS3005	Infection and Immunity	3/4	6
BBMS3007	Cancer Biology	3/4	6
BBMS3008	Essential Proteomics	3/4	6
BBMS3009	Genome Science	3/4	6
BBMS3010	Emerging Infections	3/4	6
BBMS3011	Molecular Neuroscience	3/4	6
BBMS3012	Stem Cell Biotechnologies in Regenerative Medicine	3/4	6
BBMS3018	Biomechanics and Biomedical Technologies	3/4	6
BBMS3023/BIOF3003	Digital Health	3/4	6
BBMS3024/BIOF3004	Bioinformatics Internship	3/4	6
BBMS3025/BIOF3005	Structural Bioinformatics	3/4	6
BBMS3026/BIOF3006	Biomedical Software Systems	3/4	6

BBMS3027/BIOF3007	Clinical Bioinformatics	3/4	6
BBMS3033	Medical Humanities and Ethics	3/4	6
BBMS3042	Synthetic and Systems Biology for Health Technology	3/4	6
BBMS4003	Developmental Genetics	4	6
BBMS4004	Public Health Genetics	4	6
BBMS4005	Biopharmaceutical Research and Development	4	6
BBMS4022/BIOF4002	Global Health Informatics	4	6
BBMS4023/BIOF4003	Biomedical Image Informatics	4	6
EXSC2003	Exercise Physiology	1/2/3/4	6
EXSC2008	Physical and Health Benefits of Exercise	1/2/3/4	6
EXSC3014	Rehabilitation Science	1/2/3/4	6
EXSC3018	Biological Basis of Exercise and Health	1/2/3/4	6
EXSC3019	Exercise and Chronic Diseases	1/2/3/4	6

- *Project: Capstone Experience (12 credits) [Any 1 from the list below]*

		Year	Credits
BBMS4001	Final Year Project (Biomedical Research)	4	12
BBMS4021/BIOF4001	Final Year Project (Bioinformatics)	4	12
BBMS4031	Final Year Project (Clinical Sciences)	4	12
BBMS4041	Final Year Project (Health Technology)	4	12
BBMS4012	Innovation Team Project	4	12

C. Courses for Minors offered in the Biomedical curriculum

Five minor options are offered in the BBiomedSc curriculum.

Minor in Biotechnology & Clinical Research (36 credits)

		Year	Credits
BBMS1001	Introduction to Human Anatomy and Physiology	1	6
BBMS2005	Biomedical Pharmacology	2	6
BBMS2009	Introduction to Clinical Research	2	6
BBMS2008	Contemporary Topics in Biomedical Technology	2/3	6
BBMS2010	Fundamentals of Clinical Trial Management	2/3	6
BBMS3012	Stem Cell Biotechnologies in Regenerative Medicine	3/4	6
BBMS3018	Biomechanics and Biomedical Technologies	3/4	6
BIOL2409	Biotechnology Industry and Entrepreneurship	2/3/4	6
BBMS4005	Biopharmaceutical Research and Development	3/4	6
BMED4604	Cell and Tissue Engineering	3/4	6

Minor in Genetics & Genomics (36 credits)

		Year	Credits
BBMS1003/BIOC1600	Perspectives in Biochemistry	1	6
BBMS2007	Essential Molecular Biology	2	6
BBMS2003	Human Genetics	2/3	6
BBMS3007	Cancer Biology	3/4	6
BBMS3008	Essential Proteomics	3/4	6
BBMS3009	Genome Science	3/4	6
BBMS4003	Developmental Genetics	3/4	6
BIOC3605	Sequence Bioinformatics	3/4	6
BIOC4612	Molecular Biology of the Gene	3/4	6
BBMS4004	Public Health Genetics	3/4	6
BBMS3022/BIOF3002	Genome Sequencing and Analysis	3/4	6
BBMS3025/BIOF3005	Structural Bioinformatics	3/4	6

Minor in Kinesiology (36 credits)

		Year	Credits
BBMS1001	Introduction to Human Anatomy and Physiology	1	6
EXSC2003	Exercise Physiology	1/2/3/4	6
EXSC2007	Exercise Prescription and Training	2	6
EXSC2008	Physical and Health Benefits of Exercise	2/3	6
EXSC2009	Exercise Biomechanics	1/2/3/4	6
EXSC2010	Measurement and Evaluation of Physical Activity	1/2/3/4	6
BBMS3018	Biomechanics and Biomedical Technologies	3/4	6
EXSC3017	Nutrition for Exercise and Health	3/4	6
EXSC3018	Biological Basis of Exercise and Health	1/2/3/4	6
EXSC3019	Exercise and Chronic Diseases	1/2/3/4	6

Minor in Digital Health (36 credits) – any 6 courses from the following list

		Year	Credits
Select at least two courses from this list			
BBMS1021/ BIOF1001	Introduction to Biomedical Data Science	1	6
BBMS2021/ BIOF2001	Artificial Intelligence in Medicine	2/3	6
BBMS3021/ BIOF3001	Big Data Biomedical Informatics	3/4	6
BBMS3023/ BIOF3003	Digital Health	3/4	6
BBMS3026/ BIOF3006	Biomedical Software Systems	3/4	6
BBMS4022/ BIOF4002	Global Health Informatics	3/4	6
BBMS4023/ BIOF4003	Biomedical Image Informatics	3/4	6
Select at least two courses from this list			
BMED2500	Biomedical Signal and Linear Systems	2/3	6
BMED3501	Medical Imaging	3/4	6
COMP3314	Machine Learning	3/4	6
COMP3317	Computer Vision	3/4	6
COMP3340	Applied Deep Learning	3/4	6
STAT3612	Statistical Machine Learning	3/4	6
BMED4500	Biomedical Instrumentation and Systems	4	6
BMED4504	Biomedical Signals Processing and Modeling in Biomedical Applications	4	6

Minor in Biomedical Data Science (36 credits) – any 6 courses from the following list and of which at least 2 courses are of advanced level to be studied in year 3 or above⁷

		Year	Credits
Select at least two courses from this list			
BBMS1021/BIOF1001	Introduction to Biomedical Data Science	1	6
BBMS2021 /BIOF2001	Artificial Intelligence in Medicine	2/3	6
BBMS3021/BIOF3001	Big Data Biomedical Informatics	3/4	6
BBMS3022/BIOF3002	Genome Sequencing and Analysis	3/4	6
BBMS3025/BIOF3005	Structural Bioinformatics	3/4	6
BBMS3026/BIOF3006	Biomedical Software Systems	3/4	6
BBMS3027/BIOF3007	Clinical Bioinformatics	3/4	6
BBMS4022/BIOF4002	Global Health Informatics	3/4	6
BBMS4023/BIOF4003	Biomedical Image Informatics	3/4	6
Select at least one course from this list			
COMP1117	Computer Programming	1	6
STAT1016	Data Science 101	1	6
STAT1600	Statistics: Ideas and Concepts	1	6
BBMS2013/BIOF2013	Biomedical Statistics	2	6
BBMS2022/BIOF2014	Statistical Modelling for Bioinformatics	2	6
COMP2113	Programming Technologies	2	6
COMP2119	Introduction to Data Structures and Algorithms	2	6
STAT2604	Introduction to R/Python Programming and Elementary Data Analysis	2/3	6

⁷ The courses listed for year 2/3 shall not be counted towards the advanced level course requirements.

Select at least one course from this list

BBMS1003/BIOC1600	Perspectives in Biochemistry	1	6
BBMS2003	Human Genetics	2	6
BBMS2007	Essential Molecular Biology	2	6
BBMS2009	Introduction to Clinical Research	2	6
BBMS3002	Molecular Biology of the Cell	3/4	6
BBMS3008	Essential Proteomics	3/4	6
BBMS3009	Genome Science	3/4	6
BBMS4003	Developmental Genetics	3/4	6
BBMS4004	Public Health Genetics	3/4	6
BIOC3605	Sequence Bioinformatics	3/4	6
BIOC4612	Molecular Biology of the Gene	3/4	6

Students who have taken the course(s) for the major will not be allowed to claim credits awarded for the same courses to fulfil the requirements of the minor option.