

DEGREE OF MASTER OF SCIENCE IN BIOINFORMATICS/ DEGREE OF MASTER OF BIOINFORMATICS/ POSTGRADUATE DIPLOMA IN BIOINFORMATICS

By-Laws made by the Council of the University of Colombo under section 135 of the Universities Act No. 16 of 1978, as last amended by the Universities (Amendment) Act No. 1 of 1995 and read with the Institute of Biochemistry, Molecular Biology and Biotechnology Ordinance No. 1 of 2003.

BY-LAWS

Whereas the University of Colombo has been conducting the programmes leading to the Degrees of Master of Science in Bioinformatics since 2011 under its Master of Science Bioinformatics By-Laws No. 1 of-2011

Whereas the University Grants Commission has published Qualifications Framework norms, duration, credit values, etc. of different levels of academic qualification and has impressed upon the University to revise the existing programmes to bring them in line with the requirements in the published Qualifications Framework

Whereas it has become necessary to revise and revamp the programme leading to the Degree of Master of Science in Bioinformatics to bring them on par with the requirements laid down in the Sri Lanka Qualifications Framework as updated and published by the University Grants Commission in 2015;

Whereas it is also important to take cognizance that the sphere of Bioinformatics is seeing unprecedented developments with advances in computer capacities, extensive data generated through techniques such as next generation sequencing and other high throughput techniques in genomics, transcriptomics and proteomics which requires constant updating and modernizing of the curriculum, including its syllabi and method of learning & teaching, if the would-be Degree holders are of relevance and of use to the profession and as such, the innovation and updating may have to take place on an annual basis facilitating the Degree holders to be up-to-date in skills & knowledge to respond to contemporary needs of the profession.

Whereas the Curriculum leading to the degree of Master of Science in Bioinformatics has been revised keeping with current developments in the field and whereas it has become necessary to enact By-Laws to prescribe the revised and revamped curriculum, and other provisions including those relating to procedural and substantive aspects of the Degree Programme,

The Council of the University of Colombo on the recommendation of the Senate and the Board of Management and Academic Committee of the Institute of Biochemistry, Molecular Biology and Biotechnology in concurrence with the University of Colombo School of Computing enacts the following By-Laws:

1. (1) These By-Laws may be cited as the Degree of Master of Science in Bioinformatics / Degree of Master of Bioinformatics / Postgraduate Diploma in Bioinformatics By-Laws No 33 Of 2019

(2) These By Laws shall be deemed to have come into operation with effect from 1st September 2018.

Part I – General

Award of Degree/Postgraduate Diploma

1. The Council of the University of Colombo shall have authority to confer the Degree of Master of Science in Bioinformatics, the Degree of Master of Bioinformatics, or the Postgraduate Diploma in Bioinformatics on a person who has been recommended for the conferment of the said Degree or Diploma by the Senate of the University.

2. Subject to these By-Laws a person may be awarded the Degree of Master of Science in Bioinformatics, the Degree of Master of Bioinformatics, or the Postgraduate Diploma in Bioinformatics if he/she has
 - a) been a registered student of the aforementioned programme of the Institute of Biochemistry, Molecular Biology and Biotechnology (hereinafter referred to as the Institute), of the University of Colombo (hereinafter referred to as the University), with the concurrence of University of Colombo School of Computing (hereinafter referred as the School), for the period prescribed by these By-Laws;
 - b) pursued the Programme as prescribed by these By-Laws and other regulations and rules of the Institute, the School, and the University;
 - c) satisfied the examiners at the prescribed different forms of examinations and assessments, including written examinations, practical examinations / assignments, oral examinations, term papers, seminars, workshops, literature surveys, Dissertation on a topic approved jointly by the Institute, School and the Senate, research presentations and reports, and such other examinations as may be prescribed by these By-Laws and any other relevant By-Laws, Regulations and Rules of the Institute and the University;
 - d) paid the library and laboratory deposits and all the prescribed fees including Course fee, registration fee, library fee, examination fee, and all other dues as may be payable to the Institute; and
 - e) fulfilled all other requirements prescribed by these By-Laws and other relevant Regulations and Rules of the Institute, the School, and the University.

Administration of the Programme

3. The Institute shall be in charge of the administration and general direction of the Degree/Diploma programme. Academic direction of the Programme shall be by the Board of Study in Bioinformatics comprising of Faculty from both the Institute and the School, and other relevant Departments. Two

coordinators for the programme will be appointed by the Director of the Institute, one from the Institute on the recommendation its Academic Committee, and the other from the School on the recommendation of its Academic Syndicate and Director.

Eligibility for Admission to the Programme

4. No person shall be considered eligible for admission to the Programme unless that person satisfies the minimum requirements as specified in the Regulations relevant to the Programme and has a good working knowledge of English.

Application and Selection for Admission

5.
 - a) Applications for admission to the Programme shall be called by open advertisements, circular notices, websites, etc.
 - b) Prospective applicants shall be required to pay the Institute the application fee for making an application in the prescribed form issued by the Institute.
 - c) Applications received shall be referred to the Coordinators of the Programme, who in consultation with the Board of Study, having examined the applications for necessary initial qualifications, shall recommend to the Director of the Institute to call the eligible candidates for a Selection Test and/or interview. Selection will be made by a panel appointed by the Director of the Institute on the recommendation of the Board of Study.
 - d) The candidates who have been selected for admission shall be recommended to the Senate, through the Academic Committee and the Board of Management of the Institute, for approval, with the concurrence of the Academic Syndicate of the School.

Registration for the Programme

6.
 - a) A person who has been selected for admission and whose selection has been approved by the Senate shall take steps to register for the Programme not later than the prescribed date and shall pay the Institute the library and laboratory deposits, and other deposits and prescribed fees, including the Course fee, etc., as described.
 - b) It shall be the duty of the student to ensure that his/her registration remains in force throughout the duration of the Programme, in the event that the Programme extends beyond the period of the validity of the registration.
 - c) On completion of the registration process, an applicant shall be registered as a student of the said Programme.

- d) Such registration shall be valid for the First Part of the Programme, leading to the Degree of Master of Bioinformatics, and covering the first, second, and third semesters of the Programme
- e) A student who becomes eligible, in terms of these By-Laws, to register for the Second Part of the Programme, leading to the Degree of Master of Science in Bioinformatics, shall register for the fourth, fifth, and sixth semesters, by paying the prescribed fees, including the registration fee, Course fee, supervision fee, examination fee and other fees as specified.
- f) The registration shall be deemed to have lapsed at the end of its period of validity. A student whose registration has so lapsed may renew such registration for a further period by paying the prescribed fees provided that he/she is still eligible to be registered for the Programme. For students who are **not** eligible to continue to the Degree of Master of Science in Bioinformatics, or have decided not to do so, any registration after the lapse of the **first** three semester period of registration shall be for a period of one Semester at a time. For students who are already enrolled in the part of the Programme leading to the Degree of Master of Science in Bioinformatics, any registration after the lapse of the **second** three semester period of registration shall be for a period of one Academic Year (i.e., two semesters) at a time.
- g) The Programme leading to the Degree of Master of Bioinformatics shall be for a minimum period of three (03) semesters (approximately 18 months) and a maximum period of six (06) semesters (three academic years) from the initial registration. The Programme leading to the Degree of Master of Science in Bioinformatics shall be for a minimum period of six (06) semesters (three academic years) and a maximum period of six (06) academic years from the initial registration.
- h) No person shall be entitled to a refund of any fee paid to the Institute on any ground whatsoever, excepting that, if the number of students who have been registered for the Programme is not sufficient for the Programme to be financially viable, the Institute shall refund to such student the fees already received, excluding the application fee.
- i) Notwithstanding anything stated to the contrary, the University shall have the right to cancel at any time the registration of a candidate for cause shown, with the approval of the Senate.
- j) No student shall keep away from classes, or leave the Island, or withdraw from examination, a class room test, or any other form of evaluation, without prior approval of the Institute and University, where applicable.

Part II – Programme Structure

- 7. (a) The Programme leading to the award of the Degree of Master of Bioinformatics shall be for three semesters within the first two academic years, comprising taught courses consisting of theory, practical components, and continuous assessments, as well as assignments, tutorials, workshops, and Guided Independent Study on approved topics, as prescribed by the Regulations governing the

Programme and other regulations of the Institute and the University. The Programme shall extend continuously over the period from the beginning of the First semester, to the end of the Third Semester.

(b) A student who wishes to proceed to the Degree of Master of Science in Bioinformatics, and have achieved the minimum GPA as prescribed in the Regulations governing the Programme, shall have an additional three semesters of study, comprising a literature review, and research project leading to a Dissertation, as well as other course work, as specified in the above-mentioned Regulations.

8. The duration of each semester shall, under normal circumstances, be a continuous period of 15 weeks from its beginning. Each Academic Year shall consist of two Semesters, *viz.*, the First Semester and the Second Semester. The End-of-Semester Examination of each taught Course Unit offered in a particular Semester shall be held within the same Semester. However, under exceptional circumstances, the Senate may declare, on the recommendation of the Institute and with the concurrence of the School, any Semester to have a different duration
9. The medium of instruction as well as that of assessment/examination shall be English, and the medium for correspondence shall also be English.
10. A taught Course relevant to the Programme shall consist of lectures, tutorials, practical classes and other relevant assignments, with the credit value, as shall be prescribed by the Senate on the recommendation of the Institute. The list of Courses, the syllabi and the number of question papers in each Course of the Programme shall be those set out under Regulations made by the Senate from time to time.
11. A Candidate who meets eligibility criteria for proceeding to the Degree of Master of Science in Bioinformatics set out in the Regulations and who proceeds to the said Degree shall submit a Dissertation on a research topic jointly approved by the Institute and the School, under the supervision of a supervisor(s) appointed by the Institute with the concurrence of the School.
12. The Senate shall have the power to change amend, add or delete Courses, their syllabi as well as the number, structure and rubric of question papers of the Courses on the recommendation of the Institute with the concurrence of the School.

Part III – Evaluation/ Examination

13. The Evaluation leading to the award of the Degree of Master of Bioinformatics shall consist of the First, Second, and Third Semester examinations, participation in the workshops held, and the Guided Independent Study as shall be prescribed by Regulations and Rules of the University. The evaluation leading to the award of the Degree of Master of Science in Bioinformatics will in addition include a Fourth Semester examination, a literature review, a Dissertation, and oral examination for the defense of the Dissertation in the Third Academic Year, as shall be prescribed by Regulations and Rules of the University. Each semester examination shall consist of one or more written papers, practical tests and assignments and such numbers of continuous assessments of each Course as are prescribed by the Regulations and Rules relevant to the Programme.
14. (1) The performance of students in each Course (End-of-Course examinations, continuous assessments, workshops, Guided Independent Study, Literature Review and Dissertation) shall be graded and a Grade Point Value shall be assigned as given in Table 1.

Table 1: Range of Marks, Grade and Point Value*

Marks	Grade	Grade Point Value (GPV)
90-100	A+	4.00
80-89	A	4.00
75-79	A-	3.70
70-74	B+	3.30
65-69	B	3.00
60-64	B-	2.70
55-59	C+	2.30
50-54	C	2.00
45-49	C-	1.70
40-44	D+	1.30
30-39	D	1.00
00-29	E	0.00

*As per UGC Circular No: 901.

The transcript shall include Semester and Grade Point Averages (GPAs) and the Formula for GPA calculation shall be:

$$\text{GPA} = \frac{\sum_{i=1}^n c_i \times (GP)_i}{\sum_{i=1}^n c_i}$$

Where n = number of Courses completed during the period considered for the GPA calculation, c_i = credit value of the i^{th} Course, and $(GP)_i$ = earned Grade Point for the i^{th} Course.

- (2) The GPA is rounded to the second decimal place.
- (3) Any student who has not appeared for the evaluation of a Course may be assigned a GPV of 0.00 for such Courses for the purpose of calculating his/her GPA following a request from a student.
15. In case a student completes more than the required number of Courses in a given Semester, those with higher Grade Point Values shall be considered for calculating the GPA provided they are applicable. However, the Courses not considered for GPA calculation shall be included in the student's transcript along with the Grades obtained.
16. The performance of a candidate at each Course shall be evaluated through a combined system of Continuous Assessments and End-of-Course Examinations, which will be held as End-of-Semester Examinations, as described in the regulations.
17. The performance of a candidate at the Workshops, if any, and Guided Independent Study shall be evaluated in terms of participation in all activities of different sessions and/or evaluation criteria specified in the Regulations.
18. The proposal and the Literature Review for the Dissertation shall demonstrate that the proposed research project addresses a research problem capable of advancing a novel, if not, an original argument in the area of study, and that the proposed methods of research are relevant to the problem and can be done within the time period allowed to complete the Dissertation.
19. The Dissertation shall demonstrate the student's knowledge of the critical awareness of current issues in the subject area, application of research methodology, use of appropriate techniques relevant to area of specialization, methods of research, his/her competence to present material systematically, and his/her ability to analyse and interpret results and data, make sound judgments and develop a novel, if not, an original argument and communicate the outcome clearly
20. A candidate shall not be permitted to take the End-of-semester examination unless,
 - a) he/she has followed at least 80 percent of the classes held for which attendance is compulsory;
 - b) he/she has registered with the Institute for the examination he/she intends to sit;

- c) the Coordinators have certified that he/she has completed the Courses leading to the examination by attending the required proportion of lectures, tutorial classes and other forms of instructions in each Course;
 - d) his/her student registration continues to be in force: and
 - e) his/her application for entry to the examination has been accepted.
21. a) A student in a particular academic year of the Programme and registered for particular Course of a semester shall take the examination for that semester on the first occasion on which the examination is held after the completion of instruction for that semester.
- b) Where a student does not apply for, and/or take the examination on the first occasion, he/she shall be deemed, unless the Senate determines otherwise, on the recommendation of the Institute with the concurrence of the School, to have taken the examination on that occasion, which shall be taken into account in computing the total number of occasions on which an examination could be taken by a student.
 - c) A student who is excused by the Senate, on the recommendation of the Institute with the concurrence of the School, from taking the examination on the first occasion shall take the examination on the very next occasion when it is held, and if he/she fails to apply for and/or take the examination on that occasion, he/she shall be deemed, unless the Senate determines otherwise on the recommendation of the Institute with the concurrence of the School, to have taken the examination on that occasion, which shall be taken into account in computing the total number of occasions on which an examination could be taken by a student.
 - d) A student shall not take any examination on more than two occasions, and in computing the total number of occasions, any occasion on which he/she is deemed to have taken the examination in terms of these By-Laws shall be taken into account.
 - e) All rules provided in the Examination Procedure, Offences and Punishments Regulation No. 1 of 1986 shall *mutatis mutandis* apply to, or in relation to, this Programme.
 - f) The procedure for continuous assessments, forms of evaluation in respect of each Course and the mode of their evaluation shall be decided by the Board of Study and approved by the Academic Committee with concurrence of the School. The Academic Committee shall also have power, on the recommendation of the Board of Study, to determine the structure and rubric of question papers on each Course when and where relevant with concurrence of the School.
22. A student who obtains a mark which is less than the required GP value for a Course or who wishes to improve the GP value of any Course at their next sitting, as prescribed under the By-Laws shall re-sit such Course as a repeat candidate on the first occasion at which that examination is held for such

Course. A student who obtains a mark which is less than the required GP value for an elective/optional Course shall take the same Course, or a different Course as an alternative to the same Course, after following the Course in the repeating semester. In all such cases, the maximum GP value that would contribute to the final GPA will be 2.5.

23. A student who has not obtained a GPV of 2.00 or wishes to improve the GPV obtained in one or more Courses at an End-of-Semester Examination may retake the examination again without attending lectures, practical or laboratory work etc. in the repeating semester, In such a case, marks earned at the repeating examination and the continuous assessment carried forward shall be taken into consideration for the computation of results.
24. Where a student does not participate in a Workshop, he/she shall attend the Workshop along with the next batch of students or submit a term paper as decided by the Board of Study.
25. A student shall not proceed with work on the Dissertation unless his/her literature review and proposals are approved by the Institute and the School, and one or more supervisors are appointed.
26. The Dissertation shall be evaluated by an independent external examiner(s) and the student shall defend the Dissertation at an Oral Examination by a panel of internal and external examiners. Where a student fails to secure a pass, he/she shall re-submit the Dissertation as advised by the Board of Examiners.
27. It shall be lawful for the Senate to cancel the registration of any student after one warning in writing, if the application to work by such student is unsatisfactory. No refund of any fees shall be made if and when the registration of such a student is cancelled.

Part IV: Award of the Degree or Diploma

28. a) No student shall qualify for the award of the Degree of Master of Bioinformatics, unless he/she has
 - i. satisfied a minimum of 30 credits for the Programme
 - ii. satisfied 5 credits from the Guided Independent Study
 - iii. earned a GPA of not less than 2.50 for the Programme provided that a GPV of not less than 2.00 has been earned for each taught Course and the Guided Independent Study
- b) No student shall qualify for the award of the Degree of Master of Science in Bioinformatics, unless he/she has
 - i. satisfied a minimum of 60 credits for the Programme
 - ii. satisfied 15 credits from the Dissertation

iii. earned a GPA of not less than 2.50 for the Programme provided that a GPV of not less than 2.00 has been earned for taught Course, Guided Independent Study, and Dissertation

29. A student who qualifies for the award of the Degree at the first attempt may qualify for Distinction pass, if he/she secures a GPA of not less than 3.70.
30. A student who qualifies for the award of the Degree at the first attempt may qualify for a Merit Pass if he/she secures a GPA of not less than 3.00
31. A students, who has
- i. satisfied 25 credits in the First Part of the Programme, including all compulsory Courses, but excluding the Guided Independent Study
 - ii. earned a GPA of not less than 2.00 for the Programme
- and who either does not wish to continue in the Programme towards a Master's degree, or has become ineligible to do so, due to failure to meet one or more requirements for such a degree, may supplicate for the award of a Post-Graduate Diploma in Bioinformatics. Once the Diploma has been awarded, the recipient shall be deemed ineligible to continue in the Programme towards a Master's degree, if not so already.
32. A student who is registered for the Master of Science Degree Programme but who could not satisfy the criteria/requirements relating to additional Course work and/or Dissertation may be granted the Masters Degree provided he/she makes such a request in writing and has satisfied criteria listed under item 28 above.
33. No Grade or a percentage score or the result of the evaluation of any Course shall receive official recognition for any purpose unless such Grade or percentage or the result of such evaluation, as the case may be, has been approved by the relevant Board of Examiners and the final results pertaining to the award of the Master / Master of Science Degree in the relevant year have been confirmed by the Senate.
34. The Vice Chancellor shall have the authority, in consultation with the Director of the Institute to take such action or give such direction not inconsistent with the principles underlying the provisions of these By-Laws, as appears to him/her to be necessary or expedient for the purpose of removing any difficulties that may arise in the interpretation of these provisions or for which there is no provision in these By-Laws.

PART V – Transitional Provisions

35. (1) Notwithstanding anything contained in these By-Laws, the candidates who have already been registered under the provisions of the Master of Science in Bioinformatics By-Laws No. 01 of 2011 may continue their programme under and subject to those provisions until 31 December 2020.
- (2) Subject to Sub-Section (1) above, the 2011 By-Laws are hereby repealed.

PART VI – Removal of Difficulties

- 36 The Vice Chancellor of the University shall have the authority, in consultation with the Director of the Institute of Biochemistry, Molecular Biology and Biotechnology, to take such actions or give such directions not inconsistent with the spirit and principles underlying the provisions of these By-Laws as appears to him/her to be necessary or expedient for the purpose of removing any difficulties that may arise in the interpretation of the provisions or for which there is no provision in these By-Laws or in the case of students who had followed or have been following the Master of Science Degree Programme under the earlier arrangements.

Part VII – Interpretation

- 37 In these By-Laws, unless the context requires otherwise:

“The Act” means the Universities Act No: 16 of 1978 as last amended by Universities (Amendment) Act No: 1 of 1995.

“Council” means the Council of the University of Colombo.

“Senate” means the Senate of the University of Colombo.

“University” means University of Colombo.

“Institute” means the Institute of Biochemistry, Molecular Biology and Biotechnology established under the Ordinance made by the University Grants Commission under Section 24A read with Section 18 of the Universities Act.

“Board of Management” means the Board of Management of the Institute of Biochemistry, Molecular Biology and Biotechnology.

“Academic Committee” means the Academic Committee of the Institute of Biochemistry, Molecular Biology and Biotechnology.

“Board of Study” means the Board of Study on Bioinformatics of the Institute of Biochemistry, Molecular Biology and Biotechnology.

“The School” means University of Colombo School of Computing”.

“The Academic Syndicate” means the Academic Syndicate of the University of Colombo School of Computing

“Director” means the Director of the Institute of Biochemistry, Molecular Biology and Biotechnology, University of Colombo.

“Coordinator” means the Coordinator of the Programme of Study leading to the award of the Degree of Master of Science in Bioinformatics, Degree of Master of Bioinformatics and Postgraduate Diploma in Bioinformatics.

“Programme” means the Programme of Study leading to the award of the Degree of Master of Science in Bioinformatics, Degree of Master of Bioinformatics and Postgraduate Diploma in Bioinformatics.

“Degree” means the Degree of Master of Science in Bioinformatics and the Degree of Master of Bioinformatics.

“Diploma” means the Postgraduate Diploma in Bioinformatics.

“Satisfy” means that student has registered and met all the requirements for the relevant Courses as specified by the Institute and sat for the examination

38. Any question regarding the interpretation of these By-Laws shall be referred to the Council of the University of Colombo, which after obtaining the views of the Senate, shall make a decision on such question. The decision of the Council thereon shall be final.