

CENTRAL UNIVERSITY OF SOUTH BIHAR



ORDINANCE AND REGULATIONS GOVERNING

Master of Science in Bioinformatics (M.Sc. Bioinformatics) Degree Programme

(Effective from the Academic Session 2018-2019)

Department of Bioinformatics

School of Earth, Biological and Environmental Sciences

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ORDINANCE AND REGULATIONS GOVERNING


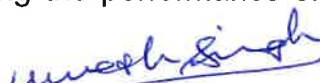
MASTER OF SCIENCE IN BIOINFORMATICS (M.Sc. BIOINFORMATICS) DEGREE PROGRAMME OF CENTRAL UNIVERSITY OF SOUTH BIHAR UNDER CHOICE BASED CREDIT SYSTEM

(Effective from Academic Session 2018-19)

Under the powers conferred by The Central Universities Act, 2009- section 28(1) (b)], as amended, Central University of South Bihar, hereby, institutes the four semester Post Graduate Degree Programme for the Award of Master of Science in Bioinformatics (M.Sc. Bioinformatics) Degree by the Department of Bioinformatics under the School of Earth, Biological and Environmental Sciences of the University under the choice based credit system. The following ordinance for governing admission, course of study, examinations and other matters relating to M.Sc. Bioinformatics Degree under Department of Bioinformatics of the Central University of South Bihar are hereby laid to come in force w.e.f. the Academic Session 2018-19 onwards till further amended.

1. Definitions of Key Words:

- 1.1 **'Choice-Based Credit System (CBCS)'**: The CBCS provides choice for the students to select course from the prescribed courses (Elective or Soft-skill courses). It provides a 'cafeteria' approach in which the students can take courses of their choice, learn at their own pace, study additional courses and acquire more than the minimum required credits, and adopt an inter-disciplinary approach to learning.
- 1.2 **'Academic Year'**: Two consecutive (one odd + one even) semesters shall constitute one academic year.
- 1.3 **'Course'**: Course, usually referred to as paper having specific title and code number, is a component of a Programme. It consists of a list of topics /points /concepts /theories /principles etc. which a student has to learn and master during the Programme of study. Each Course generally shall be of 04 credits. Each course should define the learning objectives/ learning outcomes. A course may be designed to be delivered through lectures/tutorials/laboratory work/field work/outreach activities/project work/vocational training/viva/seminars/ term papers/assignments /presentations / self-study work etc., or a combination of some of these.
- 1.4 **'Course Teacher'**: The course teacher generally will be the teacher who has primarily conceived the course, developed its contents, taken up the responsibility of teaching it and evaluating the performance of the students in that course.

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- 1.5 **'Credit'**: A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.
- 1.6 **'Credit Point'**: It is the product of the grade point and the number of credits for a course.
- 1.7 **'Grade Point'**: It is a numerical weight allotted to each letter grade on a 10-point scale.
- 1.8 **'Letter Grade'**: It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C, P and F. A letter grade is assigned to a student on the basis of evaluation of her/his performance in a course on a ten point scale.
- 1.9 **'Programme'**: An educational Programme leading to the award of a Degree, Diploma or Certificate.
- 1.10 **'Credit-Based Semester System (CBSS)'**: Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.
- 1.11 **'Semester'**: Each Semester shall consist of 15-18 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to December and even semester from January to June. The credit-based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching.
- 1.12 **'Semester Grade- Point Average (SGPA)'**: It is a measure of performance of the work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.
- 1.13 **'Cumulative Grade Point Average (CGPA)'**: It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It shall be expressed up to two decimal places.
- 1.14 **'Transcript'/ 'Grade Card' 'or Certificate'**: Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title,

number of credits, grade and/or marks secured) along with SGPA of that semester.

- 1.15 **'The University'**: 'The University' in this Ordinance means the Central University of South Bihar.

2. Admission and Other General Provisions:

- 2.1 The Programme of study leading to M.Sc. Bioinformatics Degree of Central University of South Bihar shall be of two year (Four Semesters) duration which may be completed in a maximum duration of four years (Eight Semesters).
- 2.2 The intake to the M.Sc. Bioinformatics Programme shall be as decided by the University Admission, Teaching and Evaluation Committee (UATEC)/Academic Council of the University from time to time.
- 2.3 The admission to the M.Sc. Bioinformatics Programme shall be governed by the provisions as laid down by the UATEC/Academic Council of the University from time to time.
- 2.4 Reservation of seats for admission in M.Sc. Bioinformatics Programme shall be as per reservation policy of Government of India (GoI) and as notified by GoI/UGC from time to time.
- 2.5 In accordance with the Reservation rules of GoI for admission in Central Higher Educational Institutes, reservations of seats in M.Sc. Bioinformatics Programme are as follows:

S. No.	Category	Reservation
1	SC Candidates	15 % of the intake
2	ST Candidates	7.5% of the intake
3	OBC Candidates	27% of the intake
4	Divyang Candidates	5% of the intake (<i>on horizontal reservation basis</i>)
5	Dependents/Wards of Defence Personnel/ Kashmiri Migrants/ NCC Cadets	As per the GOI rules

- (a) The candidates seeking admission under the above categories shall be required to fulfill the prescribed eligibility condition of admission of the programme and shall submit requisite documents in support of their claim, as prescribed by the GOI from time to time.
- (b) The SC/ ST/OBC candidates must enclose attested copy of the latest caste certificate as per GOI norms along with their Admission Form/Enrolment form stating that the candidate belongs to SC/ST/OBC Category.

The following are empowered to issue SC/ST/OBC Certificates:

- (i) District magistrate/ Additional District Magistrate/ Collector/ Deputy Commissioner/ Addl. Deputy Commissioner/Deputy Collector /1st Class Stipendiary Magistrate/City Magistrate/Sub Divisional magistrate/ Taluka Magistrate/ Executive Magistrate /Extra Assistant Commissioner.
 - (ii) Chief Presidency Magistrate/ Addl. Chief Presidency Magistrate/ Presidency Magistrate.
 - (iii) Revenue Officer not below the rank of Tehsildar.
 - (iv) Sub - Divisional Officer of the area where the candidate and/or his family normally resides.
 - (v) Administrator/Secretary to the Administrator/ Development Officer (Lakshadweep Islands).
 - (vi) Candidate must note that certificate from any other person/authority shall not be accepted generally.
- (c) 5% seats on horizontal reservation basis shall be reserved for Divyang Candidates (Benchmark Category) and shall be further sub-divided into different categories of Divyangs as per the GOI rules.

A candidate applying under Divyang category must attach a certificate by CMO, District Hospital. However, she/he shall be considered under Divyang category only after verification from the University Medical Board, if necessary.

- (d) Vacant seats reserved for SC/ST/OBC candidates, if any, may be filled up as per the GOI/UGC rules. In case in any one of the two categories of candidates viz., SC/ST, the required number of candidates for admission is not available (i.e., the list of respective

category has been exhausted), then candidates belonging to the other category (SC or ST as the case may be, if available), shall be called for admission in order of merit so as to make up the deficiency in the required number in any of the aforesaid two categories. This provision shall be applicable to candidates belonging to SC & ST categories only.

(e) If sufficient number of candidates are not available in OBC category (i.e., OBC category list has been exhausted), such vacant seats shall be transferred to the general category.

2.6 Mere appearance in the admission test shall not entitle a candidate to be considered for admission to the Programme unless she/he fulfills the eligibility conditions. Applicants must fully satisfy themselves about their eligibility before filling the application form.

2.7 Provisional admission shall be offered to the candidates in order of merit list and the availability of seat in the Programme on the date of admission.

2.8 In case there is more than one candidate securing equal ranks as obtained by the last candidate in order of merit in the list of candidates to be called for admission, the following *inter-se* ranking rules of the University shall be applicable.

In case the candidates have equal/tie ranks then the marks obtained in the qualifying examination shall be the deciding factor and if, that is also same or result of both the candidates is not declared, then a senior candidate on the basis of date of birth shall be given preference. However, in a case of tie rank, if the result of qualifying examination of one candidate is declared then she/he will be given preference, provided she/he fulfills other eligibility conditions. In case of any dispute the decision of the Chairman, UATEC shall be final.

2.9 If the result of the qualifying examination is not declared by a university/board till the date of admission, the mark-sheet of the qualifying examination by a candidate can be submitted on or before 30th September of the admission year. In exceptional cases, further extension may be given by the Competent Authority on cogent reason(s). However, it may be noted that this clause cannot be extended to the candidate(s) whose result is being withheld or not declared by the university/board due to some specific reasons particularly related to the candidate(s). Furthermore, if the result of qualifying examination is not declared by a university/board in general then the aggregate percentage of marks/grades of the completed semesters/years of the qualifying examination (e.g. three years/seven semesters of B.Tech. or two years/five semesters of BSc. in case of

admission in M.Sc. Bioinformatics) must be not less than the required percentage of marks/grades in the qualifying examination.

- 2.10 At the time of reporting for admission, the candidates are required to be present in person and bring the documents in original as well as a set of photocopy duly attested as notified by the Admission Committee/Controller of Examinations (CoE) from time to time.
- 2.11 A candidate provisionally selected for admission shall be required to fill the prescribed form, submit the required documents, collect her/his admit card or any other equivalent document for admission to the Programme from the office of the Department/School/University after paying the fees on or before a date fixed for the purpose, otherwise the offer made to her/him will automatically stand cancelled.
- 2.12 In case any provisionally selected candidate fails to deposit the fee by the date prescribed, her/his provisional admission shall be cancelled and the seat thus falling vacant shall be offered to the next candidate in order of merit under the specified category.
- 2.13 Notwithstanding anything contained in this ordinance, a candidate who is qualified under the foregoing ordinance for admission to the University, and who is a student of some other Indian University/Institution, shall not be admitted to the University without the production of a Leaving or Transfer Certificate and/or Migration Certificate (as the case may be) issued by the last college/university attended and certifying to the satisfactory conduct of the student mentioning the highest examination she/he has passed. However, in certain cases if the candidates are not in position to submit the Transfer Certificate and/or Migration Certificate and the character certificate at the time of admission, they should submit the same as early as possible, but not later than 30th September of the year of admission in M.Sc. Bioinformatics failing which the University reserves the right to cancel their admission. In exceptional cases, further extension may be given by the Competent Authority on cogent reason(s). However, it may be noted that this clause cannot be extended to the candidate(s) whose result is being withheld or not declared by the university/board due to some specific reasons particularly related to the candidate(s).
- 2.14 A waitlisted candidate shall be offered admission strictly on the basis of ranking, provided there is a vacancy in the Programme. Such waitlisted candidates shall have to deposit their fees latest by the date fixed by the Admission Committee/ Competent Authority.
- 2.15 The candidates enjoying employed status and selected for admission to M.Sc. Bioinformatics Programme in the University, are required to produce

Leave Sanction /Relieving Order at the time of Admission/Registration from their employer for the duration of the Programme permitting them to pursue their studies at the University, failing which the offer of admission may stand withdrawn. In case of any dispute the decision of the competent authority shall be final.

- 2.16 The admission of any candidate is liable to be cancelled without giving any further notice forthwith or at any time during the period of the concerned Programme of Study, if it is detected that the candidate has /had produced fake / forged certificate(s) /document(s) or indulged in any act of misconduct/indiscipline or has /had concealed any other relevant information at the time of admission.
- 2.17 The admission of the candidate to the M.Sc. Bioinformatics Programme shall be subject to such ordinances, rules and regulations as may be framed from time to time by the University.
- 2.18 Foreign students shall be admitted as per the rules of the University.
- 2.18 Only the High Court of Patna shall have jurisdiction in case of any dispute relating to the provisional admission in the Programme.

3. Eligibility Conditions

The eligibility conditions for admission into the M.Sc. Bioinformatics Degree Programme shall be as follows:

Bachelor degree in Biological Science/ Agricultural Science/ Pharmaceutical Science/ Veterinary Science/ Medical Science/ Mathematics/ Physics/ Chemistry/ Computer Science/ Information Technology or any other related discipline with 55% marks for General/OBC candidates and 50% marks for SC/ST candidates in the qualifying degree.

However, the eligibility conditions for admission into M.Sc. Bioinformatics Programme and intake of the Programme shall be decided by the UATEC from time to time.

4. Medium of Instruction of the Programme:

The medium of instruction and examination shall be English for M.Sc. Bioinformatics Programme.

5. Programme Fee:

- 5.1 The semester-wise fee structure of M.Sc. Bioinformatics Programme is given below:

Tuition Fee	3500
Computer Lab	3000
Evaluation Fee	500
Library / Magazine / News Letter	500
Cultural Activities	500
Games / Athletics	500
Total Fee	8500

Apart from this a student shall pay a onetime fee for Admission, Enrolment, Identity Card, Development Fee, Security Deposit (Refundable) to the tune of INR 3600. Moreover, a student shall pay Vidyarthi Medi-claim (Annual Fee) or any other fee as decided by the University prospectively.

- 5.2 The mode and schedule of payment of fees shall be decided by the university from time to time.
- 5.3 The fee structure of M.Sc. Bioinformatics Programme under Department of Bioinformatics may be changed by the University prospectively. Such changed fee structure shall be declared in the admission prospectus of the concerned academic session.

6. Conduct of the Programme:

- 6.1 To qualify for the M.Sc. Bioinformatics Degree, a candidate must earn 96 credits as contained in the Programme structure/Syllabus of M.Sc. Bioinformatics Degree as annexed with this ordinance. This Programme structure/Syllabus is subject to update/change/modify from time to time as prescribed by the Board of Studies (BoS) of the Department and need not to follow the procedure prescribed for updating the ordinances.
- 6.2 A student of the M.Sc. Bioinformatics Programme shall not be permitted to seek admission concurrently to any other equivalent or higher degree or diploma examination in this University or any other University, subject to rules/regulations of UGC or equivalent body in this regard and adoption of the same by the University.
- 6.3 The maximum period allowed to complete the M.Sc. Bioinformatics Programme will be four years (Eight Semesters).
- 6.4 The Department shall offer courses as per its schedule and available resources and can decide to offer or not to offer a particular course in a

particular semester. To earn additional or lesser credits in a semester from the Department than the prescribed in the syllabus and to earn credits from other Departments/Schools shall be the sole responsibility of the student. S/he has to choose the courses in such a way that it becomes feasible for her/him to earn the credits.

7. Type of Courses:

The M.Sc. Bioinformatics Programme of the University has three types of courses, viz., Core courses, Elective courses, and Self-study/Skill-based courses.

7.1 Core courses:

7.1.1. The core courses are those courses whose knowledge is deemed essential for the students registered for the M.Sc. Bioinformatics Programme. Where feasible and necessary, two or more Programmes (like, degree, diploma and certificate etc.) may prescribe one or more common core courses.

7.1.2 All the core courses prescribed for M.Sc. Bioinformatics Degree Programme offered by the Department of Bioinformatics under the School of Earth, Biological and Environmental Sciences shall be mandatory for all the students registered in the M.Sc. Bioinformatics Programme.

7.1.3 A core course of the Programme may be an elective course for any other Programme.

7.2 Elective courses:

7.2.1 The elective courses can be chosen from a pool of courses (papers). These courses are intended to:

- allow the student to specialize in one or more branches of the broad subject area;
- help the student to acquire knowledge and skills in a related area that may have applications in the broad subject area;
- help the student to bridge any gap in the curriculum and enable acquisition of essential skills (e.g. statistical, computational, language or communication skills etc.); and
- help the student to pursue an area of interest.

7.2.2 Along with the elective courses prescribed for the M.Sc. Bioinformatics Degree Programme offered by the Department of Bioinformatics, a student has to register herself/himself in different elective courses in such a way that she/he ensures earning of minimum eight credits as elective from the other Departments/Schools.

7.2.3 The student may also choose additional elective courses offered by the University to enable her/him to acquire extra credits from the discipline, or across the disciplines. However, up to only 16 credit courses with best grades completed from the other Departments/Schools shall be considered for calculating CGPA of the Programme of study.

7.3 Self-study/Skill-based Courses:

The self-study/skill-based courses are optional, not mandatory. Being non-credit courses, the performance of students in these courses shall be indicated either as “satisfactory” or as “unsatisfactory”, instead of the Letter Grade and this shall not be counted for the computation of SGPA/CGPA. These courses may also be taken by a student from other Departments/Schools.

Moreover, if the BoS of the Department feels that the Programme of study of M.Sc. Bioinformatics requires certain academic backgrounds to pursue the Programme effectively, it may recommend some course(s) without credit(s) to meet the purpose as compulsory part of the syllabus.

Note: A course (Core/Elective/Self-study/Skill-based) may also be offered by the department in the form of a Dissertation, Project work, Practical training, Field work or Internship/Seminar etc.

8. Mobility Options and Credit Transfers:

The students shall be permitted to opt inter-disciplinary and horizontal mobility and can take courses of their choice, learn at their paces, enroll for additional courses, acquire more than the required credits, and adopt an interdisciplinary approach to learning, subject to the provisions made in this ordinance.

8.1. A student may be allowed to take course/courses of any other University/Organization/Institution, the courses of whom are duly accredited by the Department of Bioinformatics under the School of Earth, Biological and Environmental Sciences under MoU or otherwise and approved by the Academic Council. (Note: The Department of Bioinformatics under the School of Earth, Biological and Environmental Sciences shall try to ensure accreditation of relevant courses of other Universities/Organizations/Institutions including MOOCs and increase the choice basket of M.Sc. Bioinformatics Programme).

8.2. A student availing inter-university mobility shall continue to be a bonafide-student of the University where she/he initially got admission and in case she/he earns credits from a different university, the credits so earned shall be transferred to her/his parent University.

- 8.3. It shall be the responsibility of the student to assess the feasibility and practicality of vertical mobility (across universities), as it doesn't entitle a student to be exempted or relaxed from any of the requisites (sessional, attendance, assignments, end-semester examinations and Programme duration etc.) for the completion of the Programme.
- 8.4. The mobility option should not be interpreted as inter-university migration.
- 8.5. The mobility across the disciplines is also subject to availability of desired elective course, faculty, infrastructure and number of students (as fixed by the University/Department from time to time) opting for that elective course.
- 8.6. The mobility shall be permissible from the Regular Mode Programme to the Regular Mode Programme of learning only, and cannot be replaced by Open/Distance/Online Programme.
- 8.7. A student of some other University shall in any case be admitted only at the beginning of the particular Programme/Course which she/he proposes to take in the University subject to the fulfillment of other conditions.

9. Credits:

A credit defines the quantum of contents/syllabus prescribed for a course and determines the number of hours of instruction required per week. Thus, in each course, credits are assigned on the basis of the number of lectures/tutorials/laboratory work/field work and other forms of learning required for completing the contents in 15-18 week schedule. 2 hours of laboratory work/field work is generally considered equivalent to 1 hour of lecture.

- (i) 1 credit = 1 hour of instruction per week (1 credit course = 15 contact hours of instruction per semester)
- (ii) 4 credits = 4 hours of instruction per week (4 credit course = 60 contact hours of instruction per Semester)
- (iii) 1 credit = 1 hour of tutorial per week (1 credit course = 15 contact hours of instruction per semester)
- (iv) 1 credit = 2 hours of laboratory work/field work per week (1 credit course = 30 hours of laboratory work/field)

Number(s) of credit(s) assigned to a particular course are mentioned in the detailed syllabus of the courses.

10. Course Coding:

Each course offered by the Department of Bioinformatics is identified by a unique course code comprising of twelve letters/numbers indicating Programme/level of Programme (first two letters in uppercase), Discipline/Subject (Next three letters in uppercase), Semester (next digit ranging from 1 to 4), Course Number (next three digits starting from 001 for each semester), Nature of Course for the Programme (next letter in uppercase i.e. C = Core Course; E = Elective Course, S = Self-study/Skill course), total number of credits for the course (next two digits starting

from 00), respectively.

For example, the course code for second core course of the M.Sc. Bioinformatics Programme in the Third semester in the Department carrying 4 credits shall be **MSBIS3002C04**.

Every time when a new course is prepared by the BoS of the Department (merely changing minor content and not the course title shall also be considered as a new course) it shall be assigned a new course code.

However, the University may decide a different course codification pattern for any Programme in future as per the demand of the situation.

11. Duration of the Programme:

The minimum duration for completion of M.Sc. Bioinformatics Programme shall be four consecutive semesters (two odd and two even semesters). *The maximum period for completion shall be eight semesters.*

Provided that (i) a semester or a year may be declared by the Controller of Examinations as a zero semester or a zero year for a student if she/he could not continue with the academic work during that period due to terminal illness and hospitalization of longer duration, or due to accepting a scholarship/fellowship, with due permission of the University, subject to the fulfillment of requirements laid down in this respect by the rules or regulations of the University. Such a zero semester/year shall not be counted for calculation of the duration of the Programme in the case of such a student.

(ii) Hostel and other related facilities shall not be given to a student after completion of minimum duration, i.e., four semesters required for M.Sc. Bioinformatics Programme.

12. Student Mentor:

The Department shall appoint a Mentor for each student from amongst the faculty members of the Department. All faculty members of the Department shall function as Student Mentors and shall generally have more or less equal number of students. The Student Mentor shall advise the student in choosing courses and render all possible support and guidance to her/him.

13. Course Registration:

13.1. The registration for courses shall be the sole responsibility of the student. No student shall be allowed to do a course without registration, and no student shall be entitled to any credits in the course, unless she/he has been registered for the course by the scheduled date fixed by the Department/School/University.

- 13.2. Every student has to register in each semester (in consultation with her/his Student Mentor) for the courses she/he intends to undergo in that semester by applying in the prescribed proforma in triplicate (one copy each for student, for the student's file to be maintained in the departmental office and for the office of the Controller of Examinations), duly signed by her/him, the Student Mentor, the concerned Course Teacher and finally approved by the Head/In charge of the Department of Bioinformatics, within the deadline notified for the purpose by the Department/School/University.
 - 13.3. Registration done in different courses within the stipulated period of time by a student shall not ordinarily be permitted to be changed. However, in exceptional cases, a student may be allowed by the Head/In charge of the Department of Bioinformatics to add a course, substitute a course for another course of the same type (elective or self-study/skill-based) or withdraw from a course, for valid reasons by applying on prescribed proforma (in triplicate as mentioned above in 13.2) with the consent of the Student Mentor not later than one week from the last date of course registration in a particular semester. Further, withdrawal from a course shall be permitted only if the courses registered after the withdrawal shall enable the student to earn a minimum of 20 credits. This duly approved change/withdrawal shall be notified by the office of the Department of Bioinformatics to all concerns like Controller of Examinations, both the Course Teachers etc.
 - 13.4. A student shall register for a minimum of 20 credits and can register for a maximum of 32 credits in a semester unless specified otherwise by the University for a Programme of study.
 - 13.5. If a student registers herself/himself for more elective courses than the prescribed in the Programme, while calculating the Cumulative Grade Point Average (CGPA), only the prescribed number of elective courses for the Programme of study shall be included in the descending order of the grades obtained by her/him ensuring the presence of minimum 8 and maximum 16 credits from the electives of other Departments/Schools.
 - 13.6. A student shall have the option of choosing an elective course from other Departments/Schools irrespective of the semester in which the course is offered remaining other conditions shall be same subject to the condition that the course is being offered by the particular Department in that semester. For example, a student of third Semester can opt a course of other Department offered in the first/third semester provided the course is being offered by the particular Department.
14. **Examination and Promotion:**
- (A) The examination of all the courses required for the M.Sc. Bioinformatics Degree shall be internal in nature and generally consisting of Continuous Internal Assessment and End-Semester Examination. For the preparation of

final grade in a particular course, the Continuous Internal Assessment (Formative in nature) and the End-Semester Examination (Summative in nature) shall have the weightage of 30% and 70%, respectively.

- (B) Each course, irrespective of credits assigned to it, shall be evaluated out of 100 points. These points should not be confused with traditional system of marks. The points obtained by a student in a course are indicator of percentage of marks and not the raw marks. Since, the University has adopted the system of grading, hence, the marks shall not be reflected in a grade sheet of a student. However, for wider uses, and if required, the students or the prospective employer or end user may take the following reference for calculating maximum marks and obtained marks for a Programme/Course:

For Maximum Marks –

1 Credit Course = 25 marks course

2 Credit Course= 50 marks course

3 Credit Course= 75 marks course

4 Credit Course= 100 marks course

and so on.

For obtained marks –

The obtained points may be converted into marks by taking them as percentage of marks. For example:

- (i) If a student has obtained 80 points in a 4 Credit Course, then it may be converted as: *80 marks out of 100.*
- (ii) If a student has obtained 80 points in a 2 Credit Course, then it may be converted as: *40 marks out of 50.*
- (iii) If a student has obtained 80 points in a 1 Credit Course, then it may be converted as: *20 marks out of 25.*

In such course(s), where direct numerical grades are awarded in place of points, these numerical grades shall be converted into marks by using the following formula:

Points in the Course = Numerical grade in the Course x 10

However, any change may be recommended in this pattern by the UATEC, from time to time.

14.1. Continuous Internal Assessment:

14.1.1 The Continuous Internal Assessment of the students' learning and performance shall be carried out by the Course Teacher(s). Considering the nature of the course, the teacher(s) shall decide the mode of Continuous Internal Assessment, which may include one or more assessment tools, such as student's class performance, assignments, class tests, take-home tests, term paper(s), presentations, oral-quizzes, case studies and laboratory work etc.

14.1.2 Each Course Teacher shall design the Continuous Internal Assessment system for the course she/he offers with the approval of the Departmental Committee (DC). This approved design of Continuous Internal Assessment shall be announced to the students of the respective courses at the beginning of each semester by the concerned teacher.

14.1.3 Generally, each course shall be taught by one teacher only, who shall maintain all the records related to attendance, teaching and assessment in a systematic manner. In an exceptionally rare case, if a teacher is assisted in teaching by other teacher, the teacher (in-charge of the course) shall be responsible for coordinating teaching and assessment, including award of final grade.

14.1.4 In case a student fails to appear in any Continuous Internal Assessment, it will be taken care by the concerned Course Teacher at her/his level.

14.2. End-Semester Examination:

14.2.1 Generally, End-Semester theory question paper shall include a limited number of very short answer type questions followed by short and long questions covering the entire syllabus in such a way that the question paper ensures assessing students' knowledge, understanding, application and analysis-synthesis/reflection of the subject. Thus, a standard model format of the End-Semester Examination paper consisting of 70 points shall be as under –

Section-A: 15 very short questions of 02 points each = 30 points

(Short specific questions covering the entire syllabus to be given which should be answered in approximately 50 words by the examinee).

Section-B: 04 short questions of 05 points each = 20 points
(05 short questions to be given out of which 04 questions are to be attempted in approximately 200 words by the examinee).

Section-C: 02 long questions of 10 points each = 20 points
(03 long questions to be given out of which 02 questions are to be attempted in approximately 500 words by the examinee).

However, a different format of the End-Semester question paper for some particular course (e.g., project, dissertation or laboratory/field work etc.) may be prescribed by the Board of Studies (BoS) of the Department which shall come into force only after the approval of the competent authority of the University.

14.2.2 The duration of the End-Semester theory examination generally shall be of three hours.

14.2.3 The DC shall appoint one or more team(s), as per the need, of preferably three faculty members in each team for moderation of question papers of End-Semester Examinations and communicate the same to the Controller of Examinations. The task of moderation shall be organized by the Controller of Examinations.

The paper setter and the moderator(s) shall ensure and certify that question paper is comprehensive to cover all important topics/themes/course and fit for assessing the mastery of the entire course. They shall also ensure and certify that not more than 10% questions from the previous year question paper have been repeated.

14.3 In exceptional cases, depending upon the nature of a particular course, a totally different mode of assessment and evaluation may be prescribed by the BoS of the Department for the course, which shall come into force only

after the approval of the competent authority of the University. However, it must be reflected in the detailed syllabus of the course and be available to the students at the beginning of the semester.

- 14.4 Any partial or complete change in the system of examination (Assessment & Evaluation) may be recommended by the UATEC which shall be implemented only after the approval of the competent authority.
- 14.5 A student is required to secure a minimum of 'P' grade in the Continuous Internal Assessment and in the End-Semester Examination, taking together, in a course.

14.6 Making Evaluated Answer-scripts Available to the Students:

- 14.6.1 All the examination answer-scripts shall be made available to the students after evaluation by the respective teachers as per the schedule decided by the concerned teachers or the University. In case of the End-Semester Examination, the evaluated answer scripts shall be made available to the students within 7 days of the last examination for the semester. Thereafter, within a week, all the answer books along with the statement of marks shall be sent by the concerned teacher through her/his Department to the Office of the Controller of Examinations for declaration of the results.
- 14.6.2 If a student is not satisfied with the evaluation of her/his answer script, s/he must submit a written objection to the concerned Head of the Department (offering the course) within 8 days from the last examination for the semester. Such complaint shall be looked after by a panel of three faculty members, including the concerned teacher, to be nominated by the concerned Head of the Department, whose decision shall be final. The revised points, if any, shall be submitted by the panel to the concerned Head of Department who shall further submit it to the Controller of Examinations. This complete process of grievance redressal by the panel and the further submission of marks by the Head of Department, generally, should not take more than 7 days from the date of receipt of the grievance. However, in case of any controversy, the matter shall be referred to the Vice-Chancellor for final decision and action.

14.6.3 Once evaluated answer books are submitted to the Controller of Examinations, there shall be no re-evaluation/re-totaling thereafter.

14.7 Letter Grades and Grade Points:

An absolute grading system shall be adopted to grade the students.

14.7.1. Under the absolute grading system, points shall be converted to grades based on pre-determined class intervals.

14.7.2. In the End-Semester theory or practical examinations, the examiner shall award the points and these points after adding the points of Continuous Internal Assessment shall be further converted into Grades/Grade points in accordance with the provisions of this ordinance.

14.7.3. Detail Grade Sheet issued by the Controller of Examinations office at the end of the semester shall carry points /percentage and equivalent grades (numerical and letter) both.

14.7.4. The 10-point Grading System, with the Letter Grades as given under shall be followed:

Letter Grade	Numerical Grade Point	Class Interval (in %)
O (Outstanding)	10	Above 90 and \leq 100
A+ (Excellent)	9	Above 80 and \leq 90
A (Very Good)	8	Above 70 and \leq 80
B+ (Good)	7	Above 60 and \leq 70
B (Above Average)	6	Above 50 and \leq 60
C (Average)	5	Above 45 and \leq 50
P (Pass)	4.5	40 to 45
F (Fail)	0	< 40
Ab (Absent)	0	Absent

Note:

- (i) F= Fail, and the students graded with 'F' in a Programme or Course shall be required to re-appear in the examination.
- (ii) The minimum qualifying points for a course shall be 45% (i.e., 'P' grade).
- (iii) The students shall have to qualify in the Continuous Internal Assessment and the End-Semester examinations taking together.
- (iv) Before awarding numerical grade to the points obtained in a course, only the total of Continuous Internal Assessment and End-Semester Examination shall be rounded off to remove the decimal

- point. Thus, no separate rounding off shall be done of the points obtained in different components of Continuous Internal Assessment and End-Semester Examination.
- (v) There shall be rounding off of SGPA/CGPA up to two decimal points.
 - (vi) The SGPA/CGPA obtained by a student shall be out of a maximum of 10 points.
 - (vii) In order to be eligible for the award of the M.Sc. Bioinformatics Degree of the University, a student must obtain CGPA of 4.50 at the end of the Programme.
 - (viii) Provided that the student who is otherwise eligible for the award of the M.Sc. Bioinformatics Degree but has secured a CGPA of less than 4.50 at the end of the minimum permissible period of semesters may be allowed by the Department to reappear or repeat, as the case may be, the same course(s) or other courses of the same type in lieu thereof in the extra semesters provided in Clause 11 related to the duration of Programme.
 - (ix) The Cumulative Grade Point Average (CGPA) obtained by a student shall be classified into the following division/Class:

CGPA	Class/ Division
Above 9	Outstanding
Above 8 to 9	First Class (With Distinction)
6 to 8	First Class
5.5 to < 6	High-Second Class
5 to < 5.5	Second Class
4.5 to < 5	Third Class

14.8. Re-appear in the End-Semester Examination:

- 14.8.1 Once a student has fulfilled the attendance requirements in a course as per the provisions mentioned in this ordinance but has failed to score minimum grade required to qualify the Course or failed to appear in the End-Semester Examination of the course, may be allowed to re-appear in the End-Semester Examination, in such course, in the extra semesters provided under the Clause 11 on duration of Programme.
- 14.8.2. Such student may avail the chance to re-appear only within the maximum duration of the Programme. The re-appearance shall be permitted only in the End-Semester Examination of the concerned course(s) and the marks obtained by the student in the Continuous Internal Assessment conducted earlier for the particular course(s) shall be carried forward to be added with

the marks obtained by her/him in the latest End-Semester Examination of the respective course(s).

- 14.8.3. The re-appear examination of even semesters shall be conducted along with the End-Semester Examinations of even semesters. Similarly, the re-appear examinations of odd semesters shall be conducted along with the End-Semester Examinations of odd semesters.
- 14.8.4. The re-appear examination shall be based on the syllabi of the course in force at the time of initial registration to the course.
- 14.8.5 A student who is re-appearing for the End-Semester Examination as per the clause 14.8.1 above; can re-appear in the subsequent semester(s), whenever the examination of a particular course is held, on payment of Rs. 2000/- (may be revised time to time by the University) per course in addition to the prescribed semester fee of the semester in which she/he has been promoted/provisionally promoted, if applicable, within the maximum permissible duration for the Programme.
- 14.8.6 A student who has got the Migration/Transfer Certificate issued from the University shall not be allowed to re-appear in the End-Semester Examination.

14.9 Re-appear in the End-Semester Examination for Improvement of Grade(s):

- 14.9.1 If a student wishes to improve her/his grade(s) in any course (s), s/he can re-appear in the End-Semester Examination in the subsequent odd/even semester(s), whenever the examination of the particular course(s) is held, on payment of Rs. 2000/- (may be revised time to time by the University) per course in addition to the prescribed semester fee of the semester in which she/he has been promoted/provisionally promoted, if applicable, within the maximum permissible duration for the Programme of study of the student.
- 14.9.2 A student may improve her/his points/grade by reappearing in the End-Semester Examination of a course as per the provisions of reappearing mentioned above. In such cases points obtained by the student in the Continuous Internal Assessment of the particular course shall be carried forward to the subsequent End-Semester Examination of the course. However, in such case, the points/grades obtained on the basis of latest appeared End-Semester Examination shall be considered for calculation of final CGPA of the Programme.
- 14.9.3 The re-appear examination of a course for improvement of grade shall be based on the syllabi of the course in force at the time of initial registration to the course.
- 14.9.4 A student who has got the Migration/Transfer Certificate issued from the

University shall not be allowed to re-appear in any examination for improvement of grade.

14.10 Repeating course(s):

14.10.1 A student having attendance shortage in any course may repeat the course by taking re-admission in that course in subsequent odd/even semester(s), whenever the course is being offered, within the maximum permissible duration of the Programme.

14.10.2 If a student repeats a course she/he has to fulfill all the desired requirements afresh including attendance, Continuous Internal Assessment and the End-Semester Examination. In such case the course content shall be based on the syllabi of the course in force at the time of repeat of the course. However, at the time of repeating, if the same course is not being offered by the Department due to any reason, the student may choose any other course of similar nature and credits from the available courses on recommendation of the Mentor and approval of the concerned Head of Department.

14.10.3 If a student repeats a course, she/he has to submit a fee of Rs. 3000/- (may be revised time to time by the University) per course in addition to the prescribed semester fee of the semester in which she/he has been promoted/provisionally promoted, if applicable.

14.11 Promotion Rules:

14.11.1 A student shall be declared as '**Promoted**' to the next semester when s/he earns 'P' Grade or above in the last concluded semester examination, maintaining the spirit and pattern of semester system and covering the mandatory components, such as Continuous Internal Assessment and End-Semester Examinations in all the courses for which s/he was registered till date.

14.11.2 A student shall be '**Provisionally Promoted**' to the next semester if she/he secures less than 'P' grade in **maximum three courses** out of the total courses registered by her/him till date.

14.11.3 A student shall be deemed as '**Failed**' in a semester when she/he gets below 'P' Grade in **more than three courses** or does not appear in the End-Semester Examination of **more than three courses**, after fulfilling the attendance requirements as per this ordinance, out of the total courses registered by her/him till date. In such case(s), a student has to re-appear in the End-Semester Examination of the course(s) in subsequent odd/even semester(s) within the maximum permissible duration of the Programme on payment of Rs. 2000/- (may be revised

time to time by the University) per course. Since, such student does not need to attend the classes of the course(s) again; the marks of Continuous Internal Assessment obtained by her/him in the course(s) earlier shall be carried forward to be added with the marks obtained by her/him in the latest End-Semester Examination of the respective course(s).

- 14.11.4 A student shall also be deemed as **'Failed'** in a semester when she/he failed to appear in the End-Semester Examinations of more than three courses due to the attendance criteria mentioned in 18.4 of this ordinance. Such student has to repeat the courses in the subsequent odd/even semester(s), whenever the courses are being offered, within the maximum permissible duration of the Programme, on payment of the prescribed fees as per the clause 14.10.3.
- 14.11.5 Under no circumstances, any student shall be permitted to register in a new course if she/he is having less than 'P' Grade in more than three courses.
- 14.11.6 A student shall be declared to have passed the Programme of study and award of the degree if she/he has secured the required credits with at least 'P' grade.
- 14.11.7 The re-examination of End-Semester Examination of the failed or provisionally promoted students shall be as per the clauses/sub-clauses under 14.8 above. However, only in a case where a student of final semester (within the minimum prescribed duration of the Programme) fails to appear or to achieve 'P' grade in maximum three courses including all backlogs after the result declaration of final semester, the Department may ask the concerned course Teacher(s) to conduct re-examination of End-Semester Examinations of such course(s) within a month from commencement of the next semester relaxing the condition of odd/even semester as given in 14.8.3. The student shall have to pay a fee of Rs. 2000/- per course.
- 14.11.8 If a candidate is repeating a course in an academic session, whatever may be the reason, it shall not be counted in the total number of seats and shall not affect the fresh intake of the M.Sc. Bioinformatics Programme in that academic session.

14.12 Minimum Credit Requirements:

For a two-year M.Sc. Bioinformatics Degree Programme, the credit requirements shall be 96 credits, including core and elective courses as

prescribed in the detailed syllabus attached with this ordinance and regulations. A minimum of 8 credits and maximum of 16 credits shall be in the form of elective courses from the core/elective courses offered by other Department(s).

15. Computation of SGPA and CGPA:

The University shall follow the following procedure to compute the Semester Grade Point Average (SGPA) and Cumulative Grade Point Average (CGPA):

- 15.1. The SGPA is the ratio of sum of the product of the number of credits with the grade points scored by a student in all the courses taken by a student in a particular semester and sum of the number of credits of all the courses undergone by a student in that semester, i.e.,

$$\text{SGPA (Si)} = \frac{\sum (C_i \times G_i)}{\sum C_i}$$

Where, C_i is the number of credits of the i^{th} course and G_i is the grade point scored by the student in the i^{th} course.

- 15.2. The CGPA is also calculated in the same manner taking into account all the considerable courses as per the provision laid down in this ordinance out of the total courses undergone by a student over all the semesters of a Programme, i.e.,

$$\text{CGPA} = \frac{\sum (C_i \times G_i)}{\sum C_i}$$

Where, C_i is the number of credits of the i^{th} course (which is to be considered for the award of the PG Degree) and G_i is the grade point scored by the student in the i^{th} course.

- 15.3. The SGPA and CGPA shall be rounded off to 2 decimal points.
- 15.4. Since, the calculation of CGPA is not based on all the courses undergone by the student, rather it is governed by other provisions laid down in this ordinance like, clause 7.2.3, 13.5 etc., the CGPA may differ from the corresponding calculations based on SGPA only.

16. Illustration of Computation of SGPA and CGPA:

16.1. Illustration for computing SGPA:

Course	Credit	Grade Letter	Grade Point	Credit Point
Course I	3	A	8	3 x 8 = 24
Course II	4	B+	7	4 x 7 = 28

Course III	3	B	6	3 x 6 = 18
Course IV	3	O	10	3 x 10 =30
	Total credits for the semester = 13			Total Credit points Earned = 100

Thus, SGPA = $100/13 = 7.69$

16.2 Illustrations for computing CGPA:

Courses Considered for the Award of the Degree	Completed in the month (Year)	Credit	Grade Letter	Grade Point	Credit Point
Course I	Dec 2018	4	A	8	4 x 8 = 32
Course II	Dec 2018	4	B+	7	4 x 7 = 28
Course III	June 2019	4	B	6	4 x 6 = 24
Course IV	June 2020	4	O	10	4 x 10 = 40
		Total credits for the semester =16			Total Credit points earned= 124

Thus, CGPA= $124/16= 7.75$

Note: Formula to calculate percentage from CGPA/SGPA= CGPA or SGPA x 10; and formula to calculate percentage to CGPA or SGPA = Percentage/10,

e.g., In case of example mentioned in Table 16.2, the percentage of CGPA = $7.75 \times 10 = 77.50\%$

- 16.3. Transcript (Format):** Based on the above, letter grades, grade points, and the SGPA, the Transcripts/Detail Grades Certificates (DGCs) shall be issued to the candidates for each semester and a consolidated transcript on completion of the Programme indicating the performance in all the courses considered for calculating the CGPA. Along with the CGPA, the percentage of marks obtained in the Programme shall be reflected in this consolidated transcript on the basis of the CGPA. However, this system may be changed by the University at any point of time without prior notice to the stakeholders as per the need.

17. Removal of Student Name from the Programme:

The name of a student falling under any one of the following categories shall automatically stand removed from the rolls of the University:

- (a) A student who has failed to fulfill the minimum grade point requirements prescribed for the Programme during the maximum duration of the Programme.
- (b) A student who has already exhausted the maximum duration allowed for completion of the Programme and has not fulfilled the requirements for the award of the degree.
- (c) A student who is found to be involved in misconduct, forgery, indiscipline or any other objectionable conduct, upon recommendation of the Disciplinary Committee/ Proctorial Board or any other procedure deemed fit by the University.
- (d) A student who has failed to attend the classes as stipulated under the clause of attendance requirements in this ordinance.

18. Attendance Rules:

18.1 A student is required to attend 100% of the classes held in a course in the specific semester in order to be eligible to appear in the End-semester examination of that particular course.

18.2 Waiving of attendance-deficit up to a maximum of 25% is permissible to accommodate following situations:

(a) Representing the University in any inter-collegiate, inter-University, local, national or international events; (b) Participating in an activity of the University with prior permission of the Competent Authority; (c) Participation in NCC/NSC/NSS Camps duly supported by certificate. (d) Participation in Educational Excursions, which form a part of teaching in any subject, conducted on working days duly certified by the concern Course Teacher/ Head of Department /Dean; and (e) to cover all unforeseen reasons like illness, hospitalization, personal engagements elsewhere or other personal reasons which compel a student to absent herself/himself from attending the classes.

18.3 Hence, it shall be mandatory/compulsory to every student to have attendance in 75% classes held in particular course. No waiver, for whatsoever reason, shall be given. Accordingly, no application requesting waiver below 75% attendance shall be entertained by the University. However, a further relaxation up to 10% or the days spent (whichever is

lesser) on the basis of situations mentioned under a, b & c of Clause 18.2 above (not on the basis of d of Clause 18.2) may be considered by the Vice-Chancellor on the recommendation of the Head/In charge of the Department. In any other situation no appeal can be made for this purpose even to the Vice-Chancellor.

- 18.4 A student, however, shall not be allowed to appear in the End-Semester Examination of the courses which are not covered under above mentioned clauses 18.1, 18.2 and 18.3. Such a student shall be permitted to repeat the courses in the subsequent odd/even semester(s), whenever the courses are being offered, within the maximum permissible duration of the Programme, on payment of the prescribed fees as per the clause 14.10.3. However, in the first semester, for repeating the courses, it shall be mandatory for a student to have minimum 40% attendance in aggregate (taken together all the courses registered by her/him in the semester). If a student does not put in at least 40% of aggregate attendance in the first semester, she/he shall have to leave the Programme without claiming refund of any fees, and her/his admission shall be treated as cancelled.
- 18.5 The attendance of a newly admitted candidate shall be counted from the date of her/his admission/registration or date of beginning of classes, whichever is later. In the case of promoted candidates, attendance shall be counted from the date on which respective class begins. However, if a new student is admitted late after the commencement of the classes, s/he must get herself/himself registered in the desired courses following the due procedure within 5 working days after the admission failing which her/his attendance shall be counted after 5 working days from the date of admission.
- 18.6 In a case of changed registration as per the clause 13.3 of this ordinance the total classes held for calculating percentage of attendance in the newly registered course for a particular student shall be counted from the fresh registration in that particular course.
- 18.7 Monthly records of attendance of students in each of the courses taught by a teacher is to be prepared and submitted by the concerned teacher to the Office of the Head/In charge of the Department (HoD) and the Controller of Examinations' (CoE) office by the 10th day of the next month after displaying it to the students in the course and taking their signatures. The teacher will keep the original record of attendance with her/him and submit it finally to both the offices with her/his remarks regarding the eligibility of a student for appearing in the end semester examination within three working days after the last class or teaching day in the semester, whichever is later. Any failure in compliance in this matter must be informed by the concerned

teacher to the Head of Department and the Controller of Examinations with justification.

- 18.8 There shall be an Attendance Monitoring Committee in the Department under the Chairmanship of the Head or her/his nominee for proper monitoring of attendance records and taking suitable action(s) as per the requirements.

19. Programme Structure:

The M.Sc. Bioinformatics Programme shall be of two year duration divided into four semesters. A student is required to earn at least 96 credits within the stipulated time as per the details given in Annexure-1.

20. Power to Relax and Amendments

- 20.1 All the above clauses are subject to the amendments, as and when required, as per the decisions pertaining to rules, regulations and norms of the University Statutory Bodies and other Regulatory Bodies etc., if any, from time to time.
- 20.1.1 Notwithstanding what is contained in the foregoing clauses of this ordinance, the Academic Council may, in exceptional circumstances consider at its discretion and for reasons to be recorded, relax any of the provisions except those prescribing CGPA requirements.
- 20.2 Notwithstanding anything stated in this ordinance, for any unforeseen issues arising, and not covered by this ordinance, or in the event of differences of interpretation, the Vice-Chancellor may take a decision, after obtaining the opinion/advice, if required, of UATEC. The decision of the Vice-Chancellor shall be final.

CENTRAL UNIVERSITY OF SOUTH BIHAR



Master of Science in Bioinformatics (M.Sc. Bioinformatics) Programme Syllabus

(Effective from Academic Session 2018-2019)

**Department of Bioinformatics
School of Earth, Biological and Environmental Sciences**