



जवाहरलाल नेहरू विश्वविद्यालय  
Jawaharlal Nehru University



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## **Orientation and Guidelines for students joining SLS**

The School of Life Sciences welcomes all newly admitted students. We are glad to have you with us. We together will commit to upholding the excellence and pride of this School. Please read this booklet to learn about the course structure, system of evaluation, and other required information.

### **A. Course Structure**

#### **i) M. Sc.**

**M.Sc. Life Sciences** students must complete at least 64 credits and take core courses, optional courses spread over four semesters, and practical courses in the first two semesters. During the final two semesters, students also have to carry out a research project on a specific topic under the supervision of a faculty member in a laboratory and submit a dissertation for evaluation by a committee of experts, followed by an open oral presentation defending the project. Students also have to present a seminar and submit a term paper on a current topic in life sciences. One credit comprises a minimum of 16 lectures of one-hour duration each. Students need to pass non-credit courses too.

Students are assessed and evaluated throughout the semester by a continuous system of tests, seminars, assignments, and mid- and end-semester examinations. The School follows the University-wide grading format on a 10-point scale worked out on the basis of a possible 9 point scale, and all Semester Grade Point Averages are computed as Cumulative Grade Point Average (CGPA) at the end of four semesters.

#### **M.Sc. courses**

##### **M.Sc. Semester-I (Total credits: 16)**

###### **Compulsory Courses**

<b>Course No.</b>	<b>Title</b>	<b>Credits</b>
LS 401	Biochemistry-I	2
LS 402	Cell Biology	3
LS 403	Genetics	3
LS 404	Microbiology	2
LS 405	Chemistry of Macromolecules	2
LS 406	Life Sciences Practicals-I	4

###### **Remedial Courses (Non-Credit).**

###### **For students with Biological Sciences Background:**

LS 101	Physics for Biologists	2
LS 102	Mathematics for Biologists	2

###### **For students with Physical Sciences Background**

LS 103	Plant Biology	2
LS 104	Animal Biology	2

**M.Sc. Semester-II (Total credits: 18)****Compulsory Courses**

<b>Course No.</b>	<b>Title</b>	<b>Credits</b>
LS 451	Biochemistry-II	2
LS 452	Molecular Biology	3
LS 465	Plant Physiology	2
LS 454	Animal Physiology	3
LS 455	Biophysics and Structural Biology	2
LS 479	Biostatistics	2
LS 456	Life Sciences Practicals-II	4

**M.Sc. Semester-III (Total credits: 14)****Compulsory Courses**

<b>Course No.</b>	<b>Title</b>	<b>Credits</b>
LS 475	Immunology	2
LS 476	Animal Developmental Biology	2
LS 477	Plant Developmental Biology	2
LS 478	Computational Biology & Bioinformatics	2
LS 493	Dissertation <sup>#</sup>	8

*<sup>#</sup>(Mid-term evaluation at the end of 3<sup>rd</sup> Semester and final evaluation at the end of 4th Semester)*

**Optional Courses (Any Three )**

LS 501	Molecular Genetics and Genetic Engg.	2
LS 503	Radiation Biology	2
LS 504	Virology	2
LS 505	Advanced Microbial Physiology	2
LS 506	Human Genetics	2
LS 507	Neurophysiology	2
LS 508	Biodiversity and Evolution	2

*(Not all optional courses may be offered at any given time)*

**M.Sc. Semester-IV (Total credits: 16)****Compulsory Courses**

<b>Course No.</b>	<b>Title</b>	<b>Credits</b>
LS 493	Dissertation	8
LS 492	Seminar	1
LS 580	Research design, Ethics and Scientific Publishing	1

**Optional Courses ( Any three)**

LS 562	Biophysical Chemistry Methods & Applications	2
LS 564	Molecular Cancer Biology	2
LS 567	Eukaryotic Gene Expression	2
LS 568	Plant Biotechnology	2
LS 569	Neural and Behavioural Biology	2
LS 576	Fungal Biology and Biotechnology	2
LS 578	Nanobioscience	2
LS579	Molecular Parasitology & Infectious Diseases	2

*(Not all optional courses may be offered at any given time.)*

## ii) Ph.D.

From 2019-20 academic session onwards, students are being admitted in any one of the five research groups of the School as mentioned below:-

- Group One (GONH)** - **Plant Biology; Virology; Biotechnology**
- Group Two (GTWH)** - **Microbiology; Infectology**
- Group Three (GTRH)** - **Genetics; Cell & Molecular Biology; Developmental Biology; Immunology**
- Group Four (GFOH)** - **Animal Physiology; Neurosciences and Systems Biology; Radiation and Cancer Biology**
- Group Five (GFIH)** - **Biochemistry; Biophysics; Bioinformatics; Nanobiology**

The duration of the programme is four years from the date of admission to the programme. Students are assessed and evaluated throughout the semester by a continuous system of tests, seminars, assignments, mid- and end-semester examinations. The School follows the University-wide format of grading on a 10-point scale worked out on the basis of possible 9 points.

Courses: A student registered for the **Ph.D. program in Life Sciences** has to undergo course work in the initial two semesters. For subsequent registration in the program, the student has to secure a minimum CGPA of 5.0 [for SC/ST/OBC (non-creamy layer) and physically challenged students, the minimum CGPA requirement is 4.5] in coursework.

### Ph.D. Courses

#### **Semester- I (Total Credits: 8)**

##### **Compulsory Course:**

<b>Course No.</b>	<b>Title</b>	<b>Credits</b>
LS 637	Research Methodology – Theory	2
LS 686	Research and publication ethics	2

##### **Optional courses**

**(Any Two Courses** to be opted out of which at least ONE course being compulsory from the assigned group)

<b>Group</b>	<b>Course No.</b>	<b>Course Title</b>	<b>Credits</b>
<b>I</b>	LS 646	Plant Pathogen Interaction	2
<b>I</b>	LS 684	Crop Genomics	2
<b>II</b>	LS 641	General and Applied Microbiology	2
<b>II</b>	LS 687	Fundamentals of Molecular Microbiology	2
<b>III</b>	LS 640	Current Concepts in Immunology	2
<b>III</b>	LS 638	Eukaryotic Gene Expression-II	2
<b>III</b>	LS 644	Cell Signalling	2
<b>III</b>	LS 665	Advanced Animal Developmental Biology	2
<b>IV</b>	LS 642	Topics in Neuroscience	2
<b>IV</b>	LS 643	Topics in Radiation and Cancer Biology	2
<b>IV</b>	LS 648	Cellular and Molecular Neurobiology	2
<b>V</b>	LS 639	Molecular Biophysics	2
<b>V</b>	LS 685	Biomacromolecules in Bioengineering	2

## Semester-II (Total Credits: 8)

### Compulsory Courses:

Course No.	Title	Credits
LS 655	Research Methodology - Experimental	5
LS 656	Term Paper, Research Proposal & Seminar	3

### Course Content:

Students are advised to follow the timetable and contact the course coordinator/participating faculties for the syllabus. The syllabus is also available on the school website.

## B. Examinations

Every course usually has the following set of examinations during each semester:

	Total marks* (Tentative)	Time duration	Remarks
Quiz 1	15	Maximum 1 hour	It can be a surprise test/ assignment/ seminar.
Mid-Term	35	Three hours	
Quiz II	15	Maximum 1 hour	It can be a surprise test/ assignment / seminar
End-Term	35	Three hours	
<b>Total marks</b>	<b>100</b>		

\* Marks assigned for each examination are decided by the individual teacher or course coordinator

Please be reminded that it is a **continuous assessment** semester-based evaluation system, so missing any class or examination is strongly discouraged. The University does not have any provision for formal attendance, but teachers can take attendance for mutual benefit and smooth running.

Students must appear in all the examinations. Being absent in any part will disallow the student from getting the grade. Under normal circumstances, examinations are not re-conducted for absent students. However, in case of extreme unavoidable situation, the absence from the examination can be given due consideration for re-examination by the School as suggested below:

For the Mid-term examination or quiz, a student may be allowed to reappear in the examination, provided there has been some emergency situation such as illness and the student is able to submit a proper medical certificate from JNU health center or a recognized Medical officer. The dates of re-examination may be decided based on the mutual consent of the student and the teacher, with due intimation to the Dean of the School. Reexaminations are not allowed for Practical courses and end-semester examination. Students who fail to appear for these examinations will have to take the examinations in the next academic year along with the students of the next batch.

## C. Course Evaluation/ Feedback By Students

The School encourages students to evaluate each course and give feedback at the end of each semester. For this, a questionnaire will be provided, seeking student's objective opinions on the subject/teaching of the course. This is purely an exercise of feedback done for improving the course/teaching. The questionnaire would be collected and given to the respective graduate advisory committee (GAC) for necessary discussions.

The students are encouraged to attend the meetings with their respective GACs for further discussions. In case any student has specific problems which need immediate/direct addressal can contact any member of their GAC directly.

**Constitution of Research Advisory Committee (RAC)** : There shall be an RAC constituted by the Special Committee of the School for each Ph.D. Scholar to (a) review the research proposal and finalize the topic of research; (b) guide the research scholar to develop the study design and methodology of research and identify the course(s) that he/she may have to do; and (c) periodically review and assist in the progress of the research work of the research scholar. The research scholar shall appear before the RAC once in six months to make a presentation of the progress of his/her work for evaluation and further guidance. The RAC may if it finds the research progress satisfactory and the thesis ready for submission, permit the Research Scholar to submit the thesis earlier provided he/she has pursued the said programme of research at the University for not less than three years, including the course work, from the date of admission. Three years shall be the minimum residency period.

**Ph.D. Synopsis & Confirmation to Ph.D.**: Within one year (2 semesters) from the date of completion of course work, the student, in consultation with the supervisor, needs to submit a synopsis of the research proposal and defends it in an open seminar before the assigned Research Advisory Committee (RAC) of the School, and the RAC approved synopsis must be ratified in the Special Committee. The Special Committee then confirms the admission of the student to the Ph.D. program.

**Submission of Ph.D. thesis:**

A student is expected to submit the thesis within four years from the date of admission to the programme. However, if a student is not able to complete the Ph D work within this stipulated time, the Special Committee of the School have the authority to grant an extension of time for such period as it may deem fit, but not exceeding two years beyond the period prescribed in relevant clause of the Ph.D. Ordinance. However, in case of women candidate and Persons with Disability (more than 40% disability) extension may be allowed upto four years. For seeking extension of time, a student has to write a letter to the RAC. The recommendation of RAC is to be placed before the Special Committee of the School.

**Plagiarism & Research Misconduct**: Continuation in the Ph.D. and award of Ph.D. degree by JNU would be upon strict adherence to JNU's policy on zero tolerance to plagiarised misconduct in research.

**Removal of name**: Name of the student be removed from the rolls of the University; if (a) admission of the student is not confirmed; (b) fails to submit thesis within 4 years from the date of admission or within the extended period if granted; (c) The Special Committee, may in its discretion (i) cancel the registration on the recommendation of RAC; (ii) for breach of provisions contained in the Ph.D. Ordinance.

**Criteria for Ph.D. Thesis submission**: As per UGC guidelines adopted by JNU.

## **D. Graduate Advisory Committee**

Advising students about choice of courses and curriculum and courses to be graded, oversee student performance, and recommend students for any fellowships/scholarships/awards.

### **M.Sc.**

The GAC comprising of group of faculty members which meets the students' minimum once every semester to monitor their progress and address their problems related to academics. If required the students/faculties can call for more meetings of the GAC.

The GAC interacts with the students and allot supervisor for their project work to be carried during the third and fourth semesters.

The GAC is required to address the difficulties faced by students during the course and if necessary can present the matter to the faculty committee.

### **Ph.D.**

The GAC for Ph.D. students also comprising of group of faculty, 5-6 faculty members of the School, and meets the students' minimum once every semester to monitor their progress and address their problems related to academics. If required the students/faculties can call for more meetings of the GAC.

The GAC also help in the allotment of supervisors (as described below) to new students. It also addresses the difficulties faced by the students during the course and during their tenure of research.

### **E. Ph.D. Supervisor Allotment**

After newly admitted students complete the registration for admission, students will be offered a list of positions/vacancies available with individual faculty members in the respective research groups of the School as per their admission. To orient these students to the ongoing research, the SLS faculty members would highlight their research in a colloquium soon after the completion of the admission process.

Thereafter, students are required to interact with the faculty members of the concerned group to discuss and decide on joining a laboratory. Mutual consent would be required for the final choice of laboratory. The graduate advisory committee (GAC) will provide an allotment form, which will require the signatures of the student and supervisor. The GAC will formally designate a supervisor for each student, and the list will be displayed.

It is expected that by following the criteria/procedure given above, every student will get a supervisor. However, in case a student cannot find a supervisor within the stipulated time given, the GAC will allot a supervisor from the vacancies available in the research group to which the student has taken admission, for that academic year. It is expected that no student will continue without being allotted a supervisor i.e. beyond 15 days from the date of issue of supervisor allotment form by the GAC.

The student has to submit a Ph.D. synopsis within two semesters after course work, which needs to be approved by the concerned research advisory committee (RAC). Two years of residency would start from the approval of the synopsis.

A change of supervisor is highly discouraged in SLS. Before joining a lab, students should ensure that the areas of research and the lab of their choice is in synchrony with his/her interest. The lab allotted by GAC is final, and no change will be entertained. However, in certain exceptional cases, supervisor may be changed with the consent of the student, the supervisor, and on the recommendation of the research advisory committee (RAC), before submission of the Ph.D. synopsis and before confirmation to Ph.D. programme. The new supervisor must be from the same research group and have a vacant seat in the year of admission of the student. However, the total number of Ph D students of the new supervisor should not exceed the maximum limit (as prescribed by UGC and JNU for Professor/Associate Professor/Assistant Professor), at the time of seeking change. It is important to note that supervisor change is subject to the approval of the competent authority of the University. Once the thesis synopsis is submitted, no change of supervisor will be allowed.

The School will organize Annual Life Science Research Festival (LifeFest) during mid-August every year, wherein Ph D students of Semester 5 and Semester 9 will have to present their research achievements. This open research presentation will further bolster research outputs of the students.

The Ph. D. degree is awarded on the basis of evaluation and recommendation of the thesis by examiners and successful oral defense of the research work by the candidate after fulfilling due requirements as per UGC regulations.

### **F. M.Sc. Supervisor Allotment**

For dissertation work, M.Sc. GAC will allot a supervisor to all MSc students. Supervisor allotment is carried out based on the research interest and academic performance of the student.

### **G. Student-Faculty Committee**

There is a Student-Faculty Committee at the school level consisting of not more than five teachers and five students. As per the statute of the University, it is open to the School to have all five students elected or have four students elected and one student of the School with the best academic record.

The SFC meets once / twice every semester to discuss matters pertaining to the academic work of the School except those mentioned below would fall within the purview of these Committees:

- (i) Faculty positions, recruitment, conditions of service and academic freedom, and
- (ii) Actual processes of evaluating academic performance and merit of students.

The committee may also discuss matters of general relevance in a special meeting of all concerned students and faculty members of the Centre.

## **H. Redressal Mechanism For Grievances Of Students Other Than Those Pertaining To Hostels And Evaluation**

There exists a **School Level Student's grievance redressal committee** to resolve any student- related issues (other than those pertaining to Hostels and Evaluation) within the School. However, there is also a **University Level Grievance Redressal Committee** for the redressal of grievances of Students (other than those pertaining to Hostels and Evaluation), which can be approached if the complainant is not satisfied with the decision at the school level.

### **I. Awards, Scholarships & Travel Grant**

To recognize academic excellence the following awards have been instituted:-

#### **M.Sc.**

- Prof. Gouri Shanker Singhal Merit Scholarship Award
- Mrs. Kailash Hans Bhalla Memorial Award
- Prof. A Ramesha Rao Scholarship Merit-cum-means fellowships for JNU

#### **Ph.D**

- UGC Non-NET Fellowship
- Prof. A Ramesha Rao Travel Grant
- Smt. Jaswant Kaur Khurana Merit Award
- Corpus Fund for partial support for attending conferences/meetings.

### **J. Co-Curricular And Extracurricular Activities**

- i. Biosparks: An annual research festival organized by the students under the guidance of faculty member/s.
- ii. Summer Research Programme: The School conducts an annual six-week summer research programme for students and teachers during the month of May-June.
- iii. Lectures by Eminent Scholars from India and abroad are routinely held in the School.
- iv. Spandan: Annual event organized by first-year M.Sc. students that include sporting and cultural activities for SLS students.

\*\*\*\*\* All the best \*\*\*\*\*