

SARDAR BHAGWAN SINGH UNIVERSITY

EXAM SCHEME FOR THE PHD SCHOLARS-2025



REGULATIONS GOVERNING
THE DEGREE
OF
DOCTOR OF PHILOSOPHY (Ph.D.) PROGRAM

With effect from Academic session 2025-2026
Amended as per the Notification from
UGC, MHRD, New Delhi, Dated 7th November 2022

Ph.D. EXAMINATION SCHEME & SYLLABUS

Preamble

Ph.D. Degree of Sardar Bhagwan Singh University shall be governed with "Standards and Procedure for Award of Ph.D. Degree Regulations". The regulations framed are subject to modifications from time to time by the University. This document provides details on Credits required for the Pre PhD course work, examination scheme and syllabus of the Ph.D. Programme of Sardar Bhagwan Singh University.

1. Medium of Instruction and Examinations

Medium of instruction and examination shall be English.

2. Working Days in Each Semester

Each semester shall consist of not less than 100 working days. The odd semesters shall be conducted from the month of July/August to November/December and the even semesters shall be conducted from the month of December/January to May/June in every calendar year.

3. Attendance and Progress

A candidate is required to put in at least 75% attendance in individual courses considering theory and practical separately. The candidate shall complete the prescribed course satisfactorily to be eligible to appear for the respective exams

4. Co-curricular/Research Activities

Minimum 8 credits and maximum 15 credits for co-curricular activities are to be acquired for the award of Ph.D. degree. Co-curricular activity with their corresponding credits are enlisted in

Table 1. Guidelines for Awarding Credit Points for Co-curricular Activities

Name of the Activity	Credits Eligible / Activity
Participation in National Level Seminar/Conference/Workshop/Symposium/ Training Programs (related to the specialization of the student)	1
Participation in International Level Seminar/Conference/Workshop/Symposium/ Training Programs (related to the specialization of the student)	2
Academic Award/Research Award from State Level/National Agencies	1
Academic Award/Research Award from International Agencies	2
Research / Review Publication in National Journals (Indexed in Scopus / Web of Science/pubmed)	1
Research / Review Publication in International Journals (Indexed in Scopus / Web of Science)	2

Book Chapter Publication with National Publishers	1
Book Chapter Publication with International Publishers	2
Authored/Edited Book Publication with National Publishers	1
Authored/Edited Book Publication with International Publishers	2
Patent Application Filed in India	1
Patent Grant in India	2
Patent Application Filed in Foreign Country/PCT	2
Patent Grant in Foreign Country	3
Technology Transfer in India	2
Technology Transfer in Foreign Country	4

5. Courses of Study, Credits and Schemes for End Semester Examinations

The courses of study and schemes for end semester examinations are given in the following Table 2:

Table 2: Pre PhD Courses of the program and schemes for end semester examinations.

Component & Course Code	Course Title/Area	Credits & Allotted Max Marks	UGC Guideline/Requirement
Compulsory Core Course I (PHDC 711)	Research Methodology	4 Credits & 100 Marks	Mandatory for all Ph.D. scholars (as per UGC 2022 Regulations)
Compulsory Core Course II (PHDC 712)	Research Publication and Ethics (RPE)	2 Credits & 50 Marks	Mandatory for all Ph.D. scholars (as per UGC 2022 Regulations)
⁵ Elective I (PHDC 713) Interdisciplinary: A. Computer Applications / B. Advanced Writing & Presentation Skills /C. IPR/ D. /Others	Interdisciplinary subjects	2 Credits & (50 marks)	As per UGC Recommendations & Interdisciplinary approaches
Subject-Specific Course Elective II (PHDC 714)	Advanced Topics in Relevant Research Area ¹	04 credits (100 marks)	As recommended by the Departmental Research Committee (DRC)
⁸ Specialized Teaching Practice/Course/Module/Field work) PHDC 715	Teaching/ Professional Practice	02 Credits (marks not applicable)	As recommended by the Departmental Research Committee (DRC)

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Total Minimum Credits Required		14 Credits & Total Marks = 300	As per UGC Regulation, a Minimum of 12 credits are compulsory
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²Supervised Self Study (05 Seminars, 05 Assignments, 01 Problem Solving Classes/Week (n=15); All these under the supervision of DRC.

⁵Elective I (PHDC 713) course (with required credit hrs i.e. 02 Cr.) can be completed by the students from Swayam & MOOC Portal also (optional). ⁶(Specialized TP/Course/Module/Field work) must be completed by the students upto 2nd semester of the PhD program.

Important notations:

- Compulsory courses on **Research Methodology & Research Publication & ethics (RPE)**, which will cover quantitative methods, qualitative methods, research ethics, publication ethics, and research writing.
- Subject-specific courses relevant to the scholar's area of research.
- **Additional modules**, if necessary, as recommended by the Departmental Research Committee (DRC), tailored to the research needs of the scholar.
- If deemed necessary, and based on the recommendation of the **DRC**, Research scholars may be permitted to complete part of their coursework in related departments or institutes, either within the University or at other recognized institutions. Appropriate credit will be awarded for such coursework. However, the evaluation of all coursework shall be conducted by the faculty members of the University.

6. Attendance Requirements

- Each Ph.D. scholar must maintain a minimum of **75% attendance** in the coursework.
- In exceptional circumstances, an attendance shortage up to **10%** may be condoned by the Vice-Chancellor based on valid and documented reasons.
- Scholars failing to meet attendance requirements shall not be permitted to appear for coursework evaluation and must repeat the course(s).
- **All Ph.D. scholars, regardless of their discipline**, are required to **undergo training in teaching, education, pedagogy, and writing relevant** to their chosen area of research during their doctoral studies. Additionally, Ph.D. scholars may be assigned 4-6 hours per week of teaching or research assistantship duties, which may include conducting tutorials, laboratory work, and evaluations.

7. Grading & Evaluation:

Letter grades and grade points allocations: Based on the performances, each student shall be awarded a final letter grade at the end of the semester for each course. The letter grades and their corresponding grade points are given in Table 3.



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Table 3: Letter grades and grade points equivalent to Percentage of marks and performances

Letter Grade	Grade Point (SGPA/CGPA)	Range of Grade Point (SGPA/ CGPA)	Class Interval (in %)
O (Outstanding)	10	Above 9 to 10	Above 90 and ≤ 100
A+ (Excellent)	9	Above 8 to 9	Above 80 and ≤ 90
A (very Good)	8	Above 7 to 8	Above 70 and ≤ 80
B+ (Good)	7	Above 6 to 7	Above 60 and ≤ 70
B (Above Average)	6	5.5 to 6	55 to 60
F (Fail)	0		<55
Ab (Absent)	0		Absent

A learner who remains absent for end semester examination shall be assigned a letter grade of AB and a corresponding grade point of zero. He/she should reappear for the said evaluation/examination in due course.

8. The Semester Grade Point Average (SGPA)

The performance of a student in a semester is indicated by a number called 'Semester Grade Point Average' (SGPA). The SGPA is the weighted average of the grade points obtained in all the courses by the student during the semester.

For example, if a student takes five courses (Theory/Practical) in a semester with credits C1, C2, C3 and C4 and the student's grade points in these courses are G1, G2, G3 and G4, respectively, and then students' SGPA is equal to:

$$SGPA = \frac{C1G1 + C2G2 + C3G3 + C4G4}{C1 + C2 + C3 + C4}$$

The SGPA is calculated to two decimal points. It should be noted that, the SGPA for any semester shall take into consideration the F and ABS grade awarded in that semester. For example if a learner has a F or ABS grade in course 4, the SGPA shall then be computed as:

$$SGPA = \frac{C1G1 + C2G2 + C3G3 + C4 \cdot \text{Zero}}{C1 + C2 + C3 + C4}$$

SARDAR BHAGWAN SINGH UNIVERSITY

Syllabus for Pre-PhD Mandatory courses

PHDC 711

RESEARCH METHODOLOGY

4 CREDIT POINTS

- 1. General Research Methodology** (10 h)
Research, objective, requirements, practical difficulties, review of literature, study design, types of studies, strategies to eliminate errors/bias, controls, randomization, crossover design, placebo, blinding techniques.
- 2. Biostatistics** (15 h)
Definition, application, sample size, importance of sample size, factors influencing sample size, dropouts, statistical tests of significance, type of significance tests, parametric tests (students "t" test, ANOVA, Correlation coefficient, regression), non-parametric tests (wilcoxon rank tests, analysis of variance, correlation, chi square test), null hypothesis, P values, degree of freedom, interpretation of P values.
- 3. Good Research Practices** (10 h)
Research environment, training, supervision and mentoring, research procedures, safeguards, data practices and management, collaborative research, publication and dissemination, reviewing, evaluating and editing data, examples/case studies.
- 4. Using Animals for Research** (5 h)
Animal pain and distress, alternative methodologies, ethical expectations, the role of institutional animal ethics committees and national committees, guidelines for laboratory animal facility, case studies.
- 5. A 3Rs Perspective on Ethics in Working with Animal Models** (5 h)
The 3Rs in UK/US/India, regulatory aspects of EMA/FDA/CPCSEA guidelines for animal experimentation, the use and the ethics inside the 3Rs for working with animal models of disease, ethics in animal experimentation in proceeding to (human) clinical research, case studies.
- 6. Human Participation in Research** (10 h)
Science and society, informed consent, compensation & coercion, nonvulnerable and non-competent subjects, privacy and confidentiality, balancing harms and benefits (randomized controlled trials), justice in research, science and society, ethical issues in new biotechnologies, institutional review board, inclusion/exclusion IRB review, the Nuremberg code, declaration of Helsinki, CIOMS guidelines, ICMR guidelines for human and children, case studies, online resources.
- 7. Research on Microorganisms and Biotechnology** (5 h)
Safety issues, ethical guidelines.

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PHDC 712 RESEARCH AND PUBLICATION ETHICS 2 CREDIT POINTS

Unit I Research Philosophy and Ethics (4 h)

Introduction to philosophy: Definition, nature and scope, concept and branches; Ethics, definition, moral philosophy, nature of moral judgments and reactions, the impact of research on environment, pollution, case studies.

Unit II Scientific Conduct (4 h)

Ethics with respect to science and research intellectual honesty, research integrity, scientific fraud (falsification and fabrication), plagiarism, selective reporting and misrepresentation of data, transparency, data sharing/open data policies, data disclosure policies of journals, examples/case studies.

Unit III Publication Ethics (4 h)

Publication ethics (definition, introduction and importance), best practices, standard setting initiatives and guidelines (COPE, WAME, etc.), publisher's policies, a guide to ethical writing (Office of Research Integrity, US), examples/case studies.

Unit IV Publication Misconduct, Plagiarism and Research Integrity (5 h)

Problems that lead to unethical behavior and vice versa, types; violation of publication ethics, authorship and contributorship; conflicts of interest, simultaneous submission, salami slicing, image manipulation, subject-specific ethical issues, identification of publication misconduct, complaint and appeals, interpersonal responsibilities, institutional responsibility, retraction, examples and fraud from India and abroad/case studies, types of plagiarism, Why one plagiarizes?, some case studies on plagiarism and its impact in research, regulations to protect academic integrity and prevent plagiarism (e.g. UGC Regulations 2018), methods to prevent and control plagiarism, similarity indexes and its applications, image duplication, research integrity, data manipulation and ways to identify and prevent, what is acceptable and what is not acceptable in a Thesis and in journals with respect to copying to text?, examples/case studies.

Unit V Softwares and Tools for Plagiarism and English Grammar Check (2 h)

Turnitin, Urkund, open-source softwares/tools for plagiarism checking and English grammar checking softwares like grammarly, etc., examples/hand on exercise.

Unit VI Predatory Publishing

(2 h)

Predatory publishers and journals, software tools to identify predatory publications, journal finder and journal suggestion tools, examples/case studies, online resources.

Unit VI Open Access Publishing

(2 h)

Open access publications and initiatives, SHERPA/RoMEO online resource for checking publisher copyright and self-archiving policies, DOAJ literature search, examples/case studies.

Unit VIII Databases, Research Metrics and Clinical Trials Registries

(7 h)

Indexing databases: Pubmed, Pubchem, Google Scholar, Chemical Abstracts, Science Citation Index, Ulrichsweb, China National Knowledge Infrastructure (CNKI), J-STAGE, MedIND and IndMED, Index Copernicus, DOAJ, ROAD, OpenAire, etc.; Citation Databases: Web of Science, Scopus, Crossref, DOI, science index, etc.; Impact Factor, Source Normalized Impact Factor (SNIP), SJR (SCImago Journal Rank), IPP, CiteScore, article influence and Eigen factor, h index, g index, i10 index, altmetrics, cumulative impact index; Patent Databases (Espacenet, USPTO Patent Search, Patent Scope, etc.), Clinical Trials Registries.



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PHDC 713 A

COMPUTER APPLICATIONS

2 CREDIT POINTS

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Spreadsheet (Microsoft Excel, Google Sheets, Open Office Spreadsheet), Presentation Tools (Microsoft Powerpoint, Google Slides, Open Office Impress), Online literature searching (Pubmed, Google Scholar, DOAJ Search), Biomedical databases (Pubmed, Pubchem, Clinical Trials Registries, Patent Databases (Espacenet, USPTO Patent Search, PatentScope), Reference managing softwares (Endnote, Zotero, Mendeley), Process or formulation Optimization Softwares, Softwares for Statistical Calculations, Tools for thesis writing (grammarly etc) & editing, Plagiarism detection tools (Turnitin, Urkund, open access tools), Softwares/tools for Group Communications (Zoom, Meet, Teams, etc.), Collaborative documents (Shared document creation using Google docs/forms/sheets/slides, Office 365, Dropbox paper, etc), Annotate PDFs (Mendeley, ReadCube Papers, Good Reader, Foxit PDF Reader, Adobe), Store and Organize Files (Google Drive, One Drive, Drop box, etc), Network and Interest Groups (ResearchGate, LinkedIn, Google+ communities, etc), Researcher Profiles (Publons, Researcher ID, ORCID, Kudos, Mendeley Profile, Vidwan, etc.), Repositories for Data Sharing/Storage (Inflibnet, Figshare, DSpace, etc.)

PHDC 713B

INTELLECTUAL PROPERTY RIGHTS

2 CREDIT POINTS

1. Intellectual Property Rights (8 h)

Intellectual Property Rights, Different means for Protection of financial Interests of Researches, PCT convention, WIPO patent application procedure, Indian Patent Application Procedure

2. Copyright Protection of Research Papers, Books and Allied Works (7 h)

Indian copyright law and digital technologies, Berne convention, WIPO copyright treaty (WCT), WIPO performance and phonogram treaty (PPT); Protection for computer data bases, multimedia works, case studies

3. Ethics and Values in Intellectual Property (15 h)

IP and ethics-positive and negative aspects of IPP; if Societal responsibility; Avoiding unethical practices, intellectual property rights relevant to pharmaceuticals, the role of intellectual property in pharmaceutical product life cycle management, examples/case studies.

1. Advanced Writing Skills (15 h)

Scientific publications of various types (books, journals, reports, etc.), Writing research papers. The structure and components of research papers (title, abstract, introduction, materials and methods, results, discussion, conclusions, references). Preparing, submitting, revising and publishing scientific manuscripts. The peer-review process. Dealing with editors and reviewers. Writing scientific reports and theses. Presenting analytical data: designing effective tables and illustrations (line drawings, graphs and charts, photographs) and captions for these. Presenting analytical data: designing effective tables and illustrations (line drawings, graphs and charts, photographs) and captions for these.

2. Advanced Presentation Skills (15 h)

Preparing and giving oral presentations: softwares and visual aids; conferences, meetings and viva voce examinations. Content, timing, clarity and other aspects. Actual presentations by students taking the course.

PHDC 713-D OTHER SUBJECTS**2 CREDIT POINTS**

List of subjects and syllabus to be provided by the DRC Chair as per the approved BORS.

PHDC 714 ELECTIVE 2: SUBJECT IN THE FIELD OF DISCIPLINE 04 CREDIT POINTS

List of subjects and syllabus to be provided by the DRC Chair as per the approved BORS.



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SARDAR BHAGWAN SINGH UNIVERSITY

(Established vide Uttarakhand Act 12 of 2018)

Balawala, Dehradun-248161, Uttarakhand, India

Managed by - Gaurav Bharti Shiksha Sansthan

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Approved Ph.D. Degree Nomenclature

School / Faculty	Degree Nomenclature
School of Life Sciences	Ph.D. in Life Sciences (Botany) Ph.D. in Life Sciences (Zoology) Ph.D. in Microbiology Ph.D. in Biotechnology Ph.D. in Biochemistry
School of Pharmaceutical Sciences & Tech	Ph.D. in Pharmaceutical Sciences
School of Physiotherapy	Ph.D. in Physiotherapy
School of Applied Chemistry & Basic Sc.	Ph.D. in Chemistry Ph.D. in Pharmaceutical Chemistry (If Student's M.Sc. in Pharmaceutical chemistry)


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