



DEPARTMENT OF FISHERY SCIENCES  
**VIDYASAGAR UNIVERSITY**

P.O.: MIDNAPORE, DIST.: PASCHIM MEDINIPUR, WEST BENGAL, PIN- 721102

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**Syllabus for Ph.D. Course Work**

**SUBJECT: FISHERIES SCIENCE**

*Course Structure:*

Course	Subject	Full Marks	Marks Distribution	Credits
<b>Paper - I</b>	Research Methodology and Research Publication Ethics (RPE) and Computer Application	50	Written Exam-50	4
<b>Paper - II</b>	Statistics	50	Written Exam-50	4
<b>Paper - III</b>	<i>Subject Specific:</i> Fisheries Science	50	Written Exam-50	4
<b>Paper - IV</b>	Emerging Issues in Core Areas of Research	50	Seminar presentation -50	4

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**PAPER- I**

*CourseName:*

**ResearchMethodologyandResearch Publication Ethics(RPE) and  
Computer Application**

*(FullMarks-50Credit-4:WrittenExam-50 marks(2hrs.)*

**SECTION-A**

**BasicconceptsofResearchMethodology**

**20Marks**

- a) Definition of Research Methodology- Distinction between Method andMethodology-Differentkindsof Research
- b) Finding Library Resources: Computer Literacy; Use of e-books; e-Journal &JSTOR
- c) StyleofReferencing-sources,quotingsources,abbreviation
- d) Bibliography:MLAandAPAFormats
- e) Punctuation,ProofReadingandDia-criticalmarking
- f) WritingaTermPaper
- g) ReviewingArticlesandBooks
- h) writingagoodResearchProposal

**References**

- RichardVeit,ChristopherGouldandJohnClifford– Writing,ReadingandResearch(2<sup>nd</sup>Ed.).
- NormanBlaikie–ApproachestoSocialEnquiry.
- C.R.Kothari&GauravGarg–ResearchMethodology– MethodsandTechniques(3<sup>rd</sup>Ed.)
- KateL.Turabian–AManualforWritersofResearchpapers,ThesesandDissertation.
- JonathanAnderson,BarryH.Durston,MillicentPoole–ThesesandAssignment

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## SECTION B

### **Research and Publication Ethics**

**20 Marks**

#### **RPE 01: PHILOSOPHY AND ETHICS (3 hrs.)**

1. Introduction to philosophy: definition, nature and scope, concept, branches
2. Ethics: definition, moral philosophy, nature of moral judgements and reactions, different branches of ethics, research ethics.
3. Responsibilities of researchers to fellow researchers, respondents, the public and the academic community.

#### **RPE 02: SCIENTIFIC CONDUCT (5 hrs.)**

1. Ethics with respect to science and research.
2. Intellectual honesty and research integrity.
3. Scientific misconducts: Falsification, Fabrication, and Plagiarism (FFP).
4. Redundant publications: duplicate and overlapping publications, salami slicing.
5. Selective reporting and misrepresentation of data.
6. Privacy, autonomy, confidentiality and anonymity.
7. The funding and sponsorship of research.

#### **RPE 03: PUBLICATION ETHICS (7 hrs.)**

1. Publication ethics: definition, introduction and importance.
2. Best practices/ standards setting initiatives and guidelines: COPE (Committee of Publication Ethics), WAME (World Association of Medical Editors), etc.
3. Conflict of interest.
4. Publication misconduct: definition, concept, problems that lead to unethical behavior and vice versa, types.

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5. Violation of publication ethics, authorship and contributorship.
6. Identification of publication misconduct, complaints and appeals.
7. Predatory publishers and journals.
8. The role of the researchers.

## PRACTICE

### RPE04: OPEN ACCESS PUBLISHING (4 hrs.)

1. Open access publications and initiatives.
2. SHERPA (Securing a Hybrid Environment for Research Preservation and Access) / RoMEO (Rights Metadata for Open Archiving) online resource to check publisher copyright & self-archiving policies.
3. Software tool to identify predatory publications developed by SPPU (Savitribai Phule Pune University).
4. Journal finder / journal suggestion tools viz. JANE, Elsevier Journal Finder, Springer Journal Suggester etc.

### RPE05: PUBLICATION MISCONDUCT (4hrs.)

#### A. Group Discussions (2hrs.)

1. Subject specific ethical issues, FFP, authorship.
2. Conflicts of interest.
3. Complaints and appeals: examples and fraud from India and abroad.

#### B. Software tools (2hrs.)

Use of plagiarism software like Turnitin, Urkund and other open-source software tools.



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## RPE06:DATABASESANDRESEARCHMETRICS(7hrs.)

### A. Databases(4hrs.)

1. Indexingdatabases.
2. Citationdatabases:WebofScience,Scopus,etc.

### B. ResearchMetrics(3hrs.)

1. ImpactFactorofjournalasperJournalCitationReport,SNIP,SJR,IPP,CiteScore.
2. Metrics:h-index,gindex,i10index,altmetrics.

## References

- Bird,A.(2006).*PhilosophyofScience*.Routledge.
- MacIntyre,Alasdair(1967)*AShortHistoryofEthics*.London.
- P. Chaddah,(2018) *Ethicsin CompetitiveResearch:Do not get scooped;donotgetplagiarized*,ISBN:978-9387480865
- NationalAcademyofSciences,NationalAcademyofEngineeringandInstituteofMedicine.(2009).*OnBeingaScientist:AGuidetoResponsibleConductinResearch:ThirdEdition*.NationalAcademiesPress.
- Resnik, D. B. (2011). What is ethics in research & why is it important.*NationalInstituteofEnvironmentalHealthSciences*,1-10.Retrievedfrom<https://www.niehs.nih.gov/research/resources/bioethics/whatis/index.cfm>
- Beall,J.(2012).Predatorypublishersarecorruptingopenaccess.*Nature*,489(7415),179-179.<https://doi.org/10.1038/489179a>
- Indian NationalScienceAcademy(INSA), *Ethicsin ScienceEducation,ResearchandGovernance*(2019),ISBN:978-81-939482-1-7.<http://www.insaindia.res.in/pdf/EthicsBook.pdf>
- Oliver Paul: *The Students Guide to Research Ethics*, Open University Press,McGrew Hill.
- H.MartynandAnneTrainanou:*EthicsinQualitativeResearch:Controversies and Contexts*, Sage,NewDelhi.

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**SECTION-C**

**BasicknowledgeofComputerApplication**

**Marks 10**

1. MS Word
2. PowerPointPresentation
3. SpreadSheet/ExcelSheet

**PAPER-II**

**Statistics**

*(FullMarks-50Credit-4:WrittenExam-50 marks(2hrs.)*

**Coursedetails:StatisticalMethods**

1. Normalprobabilitydistribution.
2. Testforgoodnessforfitforaproposeddistribution.
3. Correlationofcoefficient:simplelinear,multiplelinear,andpartial
4. Regression;simple,multipleandstepwise.
5. Experimental design. Analysis of variance: its model, one or two way ANOVA. Multiple comparison tests.
6. SoftwarePackages for statistical analysis

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## PAPER-III

Subject Specific: **Fisheries Science**

*Full Marks-50 Credit-4: Written Exam-50 marks (2hrs.)*

### Course details:

1. Aquatic Ecology and Environmental Management.
2. Aquatic pollution and Eco-toxicology.
3. Fish Nutrition & Bioenergetics.
4. Aquatic Microbiology & Public Health Fisheries.
5. Fish Pathology, Parasitology and Disease management.
6. Fish Immunology.
7. Fish Biochemistry and Endocrinology.
8. Fish Physiology and Reproductive biology.
9. Fish Genetics and Breeding.
10. Biotechnology and Genetic Engineering.
11. Fisheries Technology, Oceanography, Remote sensing and GIS.
12. Aquaculture Engineering and Aquaculture technology,
13. Fish Processing Technology & Quality assurance.
14. Fisheries Extension, Economics, Marketing.

## PAPER-IV

**Emerging Issues in Core Areas of Research**

*(Full Marks- 50 Credit-4)*

A review work to be submitted and a brief presentation to be delivered by the concern research student.

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