Parvatibai Chowgule College of Arts and Science
Autonomous
Accredited by NAAC with Grade 'A' (CGPA Score 3.41 on a 4 Point Scale)
Best Affiliated College-Goa University Silver Jubilee Year Award

MINUTES OF THE EIGHTH BOARD OF STUDIES IN ZOOLOGY HELD ON 18th FEBRUARY, 2021 IN THE A-202 LAB, SCIENCE BLOCK OF PARVATIBAI CHOWGULE COLLEGE

***(ONLINE MODE VIA GOOGLE MEET:** meet.google.com/bja-fqbf-nmh)*

Vide Parvatibai Chowgule College notice (F.133C /1099 emailed on 10-02-2021) a meeting of the BoS was convened on 18th February, 2021 at the A-202 Lab, Science Block of Parvatibai Chowgule College of Arts and Science, Margao – Goa. Since the members represented the Quorum, the B.O.S. began its proceedings.

The swayam courses identified by Zoology dept. stands approved in the Academic Council meeting held on 17th July 2021 and subsequently in the Governing Body meeting held on 19th August 2021

MEMBER-SECRETARY
Academic Council
PARVATIBAI CHOWGULE COLLEGE
OF ARTS & SCIENCE (AUTONOMOUS)
MARGAO-GOA

MEMBERS PRESENT:

AT THE VENUE:

1.	Dr. Nandini Vaz Fernandes:	Chairperson
2.	Ms. Madhu P. Balekai	Member secretary
3.	Dr. I. K Pai:	Vice chancellor Nominee
4.	Ms. Tessa Vaz	Member
5.	Ms. Gautami N Manakikar	Member
6.	Ms Prasanna Naik Gaonkar	Member
7.	Mr Stephen Jonah Dias	Member
8.	Ms. Pratibha Tripathi	Member

ATTENDED IN VIRTUAL MODE:

1.	Dr. Manoj Borkar	Academic Council Nominee
2.	Dr. Sameer S Terdalkar	Academic Council Nominee
3.	Dr Philip Mascarenhas	Representative from Industry

MEMBERS ABSENT:

1.	Ms. Suzy F. Fernandes	Alumnus

PROCEEDINGS:

At the onset, the chairperson welcomed the members of Board of Studies (BOS) for the eighth BOS meeting and placed the agenda for the deliberations of the members. Member secretary discussed the minutes of seventh BOS meeting that was held on 14th March 2020 of the final approval by the BOS members. The following deliberations were made as per the circulated agenda.

AGENDA:

Approval of

1. LOCF document of BSc Zoology
2. SWAYAM Courses for Internships
3. Lateral/vertical mobility of PG Diploma Course – Clinical Genetics and Medical lab Techniques
4. A.O.B.

PART B:

Resolutions/recommendations of B.O.S that require consideration/approval of academic council.

1) **APPROVAL OF LOCF DOCUMENT:**

After due deliberations and discussion the LOCF document of the Department of Zoology was approved by the BOS members. Learning Outcome based Curriculum Framework (LOCF) document of Zoology of parvatibai Chowgule College is a consolidated document for Bachelor of Science in Zoology which describes the processes and curriculum adopted to attain the expected learning outcome. Learning Outcome Based Education is reflected in this document and highlights the curriculum, academic resources, technology integrated teaching-learning processes, use of appropriate student centric teaching-learning pedagogies, appropriate assessment modes etc. The document also 'maps' various activities conducted at the department, T-L pedagogies and evaluation modes to the expected learining outcome. Thus this LOCF document brings out clarity among students as to what is expected from them after completion of the programme and so also serves as a reference for teachers in bringing focus on what to teach, how to teach and evaluate to enable students achieve the desired outcome.

2) **SWAYAM COURSES AS INTERNSHIP:**

As an initiative to provide internship opportunities for the TYBSc students of Zoology, in view of the pandemic, the Department of Zoology identified SWAYAM courses which may be considered for awarding internship hours to the students. The SWAYAM courses were selected on the basis of the objective and content of the course, if it aimed at enhancing students' soft skills or research skills. After due deliberations and discussion following SWAYAM courses were approved by the BOS members for completion of internship hours.

Sr No	Course title	Topic
1	Academic Research & Report Writing	Entire syllabus
2	Basic research	Entire syllabus
3	Biostatistics and Mathematical Biology	Entire syllabus
4	Applied entomology	Entire syllabus
5	Enhancing Soft Skills and Personality	Entire syllabus

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The foregoing minutes of the meeting were e-mailed by the Chairman after the meeting and were unanimously approved by all the members present.

Dr. Nandini Vaz Fernandes
Chairman B.O.S.

Ms. Madhu Balekai
Member Secretary

Date: 28th Feb 2021.

PART C : The remarks of the Dean of the Faculty :

a) The minutes are in order:
b) The minutes may be placed before the Academic Council with remark, if any.
c) Important points of the minutes which need clear policy decision of the Academic Council to be recorded.

Signature of the Dean: _____

Date : 28/02/2021

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Parvatibai Chowgule College of Arts and Science
Autonomous

DEPARTMENT OF ZOOLOGY

PROGRAMME BSC ZOOLOGY

LIST OF SWAYAM COURSES APPROVED BY BOS AS INTERNSHIP

Approved by the BOS members during the Eight Board of Studies Meeting in Zoology held on 18th February, 2021 in A-202 Lab of Science Block of Parvatibai Chowgule College of Arts and Science, Margao – Goa.

Sr No	Swayam Courses approved in lieu of internship during pandemic	Component
1	Academic Research & Report Writing	Entire syllabus
2	Basic research	Entire syllabus
3	Biostatistics and Mathematical Biology	Entire syllabus
4	Applied entomology	Entire syllabus
5	Enhancing Soft Skills and Personality	Entire syllabus

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Course 1: Academic Research & Report Writing

Course Details:	Academic and research report writing is an essential activity for a contemporary teacher in institutes of higher education. It is a fact that a modern teacher has to play a variety of roles apart from that of an academic instructor. Research is one of such major activities for them. Publication of research findings is an integral part of research. Therefore, it is necessary for a teacher / researcher to learn and apply principles and techniques of report writing for effective dissemination of the academic and research findings. This course intends to introduce the learner to the principles, techniques and tools of academic and research report writing. After successful completion of this course the learner will be able to write reports on various academic activities including research effectively and efficiently.
Course Duration	8 weeks
Link to the course	https://onlinecourses.swayam2.ac.in/ntr21_ed23/preview

Course Layout:

Week	Syllabus
1	Introduction: Importance of report writing in academics and research, Various kinds ofacademic and research activities; Necessity of report writing for achievement ofacademic and research goals; Various kinds of reports / presentations; Characteristics of academic and research reports / presentations; Conclusions.
2	Research paper writing: Types of research papers, Structure of research papers, Research paper formats, Abstract writing, Methodology, Results and discussions, Different formats forreferencing, Ways of communicating a research paper.
3	Thesis writing: Structure of a thesis, Scope of the work, Literature review, Experimental / computational details, Preliminary studies, Results and Discussions, Figures and Tables preparation, Conclusions and future works, Bibliography, Appendices.
4	Tools and Techniques: Various word processors, e.g, MS Word, Libra-office, Latex etc. Making effective presentations using Power Point and Beamer, Uses of plagiarism detection tools.
5	Miscellaneous Reports: Writing research proposals, Writings project proposals, Lecture notes, Progress reports, Utilization reports, Scientific reports etc.
6	Hands-on and Mini Project Assignment of mini project, Discussions.
7	Hands-on and Mini Project Assignment of mini project, Discussions.
8	Hands-on and Mini Project Assignment of mini project, Discussions.

Reference Material:

1. Whitaker, A. (2009). Step-by-Step Guide to Writing Academic Papers.
2. Ravikumar, C. (2000). On Writing a Thesis. IETE Journal of Education.
3. LATEX for Beginners, Edition 5, March 2014 Document Reference: 3722-2014
4. Warbrick, J., Carlisle, D., Goossens, M., Rahtz, S., & Clark, A. (1994). Essential LATEX ++.

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Course 2: Basic Research

Course Details:	Research is an essential activity for a contemporary teacher. It is a fact that a modern teacher has to play a variety of roles apart from that of an academic instructor. Research is one of such major activities for them. Therefore, it is necessary for a teacher / researcher to learn and apply principles and techniques of basic research. This course intends to introduce the learner to the principles, techniques and tools of research. This course develops the learners a conceptual understanding of research, its need and ethical research practices. It explains the methods and techniques of qualitative research to the learner. Facilitate them to apply statistical techniques for analysis of data. And it also helps to know about presenting the data in various forms
Course Duration	8 weeks
Link to the course	https://onlinecourses.swayam2.ac.in/cec21_ed01/preview
Course Layout:	
Week	Syllabus
1	1. Education Research-I 2. Education Research-II 3. A) Scientific Methods in Research - Part 1 B) Scientific Methods in Research - Part 2
2	4. Types of Research 5. Selection of Problem 6. Formulation of Hypothesis
3	7. Conceptualisation in Research 8. Educational Research - Tools of Research - 1 9. Educational Research - Tools of Research - 2
4	10. Action Research in Teaching Learning Environment 11. Data Analysis and Coding 12. Analysis of data - Content Analysis
5	13. Measures of Central Tendency (Edu) 14. Measures of Dispersion (Edu) 15. Correlation and Regression (Edu)
6	16. Introduction to Research Design & Descriptive design 17. Introduction to Experimental Design 18. Experimental design – Types
7	19. Sampling 20. Sampling - Types 21. Types of Qualitative and Quantitative Data
8	22. Validity and Reliability (Edu)

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	23. Data Classification and Presentation 24. Graphic Presentation of Data (Edu)

Reference Material:

1. Best, J.W. &Khan,J.V. (2003). Research in Education. USA: Prentice-Hall Inc.
2. Cohen,L., Manion, L . & Morrison, K. (2007). Research Methods in Education. New York: Routledge.
3. Gall, M.D., Gall, J.P. &Borg,W.R. (2007). Educational Research. U.S.A: Pearson.
4. Gupta, S.P. (2008). Statistical Methods. New Delhi: Sultan Chand & Sons Educational Publishers.
5. Krishnaswamy, O.R. (1993). Methodology of Research in Social Science. New Delhi: Himalaya Publishers.
6. Ary, D., Jacobs, L. C., Irvine, C. K. S., & Walker, D. (2018). Introduction to Research in Education. US., Cengage Learning.
7. Berg, B.L. and Lune, H (2011) Qualitative Research Methods for the Social Sciences. New Delhi: Pearson Publication.
8. Bernard, H. R. (2017). Research methods in anthropology: Qualitative and quantitative approaches. Maryland., US., Rowman & Littlefield.
9. Gravetter, F. J., &Forzano, L. A. B. (2018). Research Methods for the Behavioral Sciences. US.,Cengage Learning.
10. Green, J., & Thorogood, N. (2018). Qualitative methods for health research. New Delhi., Sage.
11. Gupta, S. (2003) Research Methodology and Statistical Techniques. New Delhi: Deep & Deep Publishing.
12. Mukherji, P., &Albon, D. (2018). Research Methods in Early Childhood: An Introductory Guide.New Delhi: Sage Publications.
13. Potti, L.R. (2004) Research Methodology. Thiruvananathapuram: Yamuna Publications
14. Silverman, D. (2012) Qualitative Research New Delhi: Sage Publication
15. Singh, A. K. (2004).Tests Measurement and Research Methods in Behavioural Science. New Delhi: Tata McGraw-Hill Publishing.

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Course 3: Biostatistics and Mathematical Biology

Course Details:	This 12 weeks course will thoroughly cover basic mathematics essential for biologists. Traditional course Biostatistics offered across Indian universities usually do not cover topics such as Bayesian probability, Maximum Likelihood, Box-Plots, Statistical Power and sampling size estimation, Normality and Outlier tests, Non-linear regression and so on; this course is designed such a way to compensate that deficiency. In addition, mathematical skills essential for biologists are covered thoroughly as part of this course, including levels of measurements, permutations and combinations, tests for categorical data including Relative Risk, Odds Ratio and so on. Fun facts and games included in the course is expected to pique interest among the participants. Substantial time is spared to solve practice problems on whiteboard, making the comprehension easy. The course is application oriented and more importance is given for deciding which significance test to use, how to analyse the data and so on using computational softwares rather than manual solutions or using statistical tables.
Course Duration	12 weeks
Link to the course	https://onlinecourses.swayam2.ac.in/cec21_bt07/preview
Course Layout:	
Week	Syllabus
1	Biostatistics and Mathematical Biology: An Introduction, Types of studies
2	Levels of measurements Summarizing the Data: Tabular Presentation
3	Summarizing the Data: Graphical Presentation Charting with Excel
4	Descriptive statistics: Point Estimates Descriptive Statistics: Interval Estimates Error Bars
5	Moments, Normality Tests and Outliers Concepts of Population, Sample and Confidence Interval
6	Statistical Hypothesis Testing Statistical Significance and P-Values Relationship between Confidence Intervals and Statistical Significance
7	Statistical Power and Choosing the right Sample Size t-Distribution and tests of significance based on t-distribution F-distribution and tests of significance based on F distribution
8	$\chi 2$ Distribution and tests of significance based on $\chi 2$ distribution Comparing Proportions Gaussian, Binomial, Lognormal and Poisson Distributions
9	Pearson's Correlation Simple Linear Regression Non-Linear Regression
10	Nonparametric tests Permutations and Combinations
11	Probability Bayes Theorem and Likelihood
12	Statistics with MS Excel and GraphPad Prism Key concepts of statistics Statistical Pitfalls to Avoid
Reference Material:	

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1. Motulsky, H. (2014). Intuitive biostatistics: a nonmathematical guide to statistical thinking. Oxford University Press, USA. Amazon link
2. Van Belle, G., Fisher, L. D., Heagerty, P. J., & Lumley, T. (2004). Biostatistics: a methodology for the health sciences(Vol. 519). John Wiley & Sons.
3. Le, C. T., & Eberly, L. E. (2016). Introductory biostatistics. John Wiley & Sons.

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Course 4:Applied Entomology

Course Details:	Applied entomology deals with the dual nature (useful and harmful) of insects as applied to mankind. It provides the detailed information on economically important insect orders, including their characteristic features. It also deals with metamorphosis in insects, the ways in which beneficial insects like silkworm, honey bees and lac insects can be best exploited for the human welfare. In addition, this area of entomology focuses on the exploitation of predators and parasitoids for the management of harmful insects and pollinators for the improvement of crop yields. It also consists of detailed account on management of harmful insects by adopting various methods.
Course Duration	12 weeks
Link to the course	https://onlinecourses.swayam2.ac.in/cec21_bt09/preview
Assessments	1) Assessment/ Assignment will be considered for Internal Marks and will carry 30 percent for overall Result. 2) End Term Examwill have 100 questions and will carry 70 percent of overall Result. 3) Students are required to score a minimum of 40 % in in-course assessment and 40% marks in end-term exam separately to be pass the course.

Course Layout:

Week	Syllabus
1	Characteristic features of insects, Metamorphosis in insects, Salient features of insect orders
2	Lepidoptera, Diptera, Hymenoptera
3	Coleoptera, Hemiptera, Neuroptera
4	Insect behaviour, Identification of a few insects using keys, Beneficial insects
5	Silkworms, Honeybee, Lac insect
6	Parasitoids, Predators and Pollinators, Insects as human food, Insects as important laboratory tools
7	Categories and types of pests, Harmful insects, Agricultural pests, Veterinary insects, and other pests
8	Rat flea, Pests of public health importance, Mosquito
9	House fly, Louse, Bed bugs
10	Insect vectors, Insect pest control, Pesticides, Integrated pest management
11	Social insects, Termites, Wasps, and ants

Reference Material:

1. Fenemore, P., & Alka, P. (1992). Applied Entomology. New Delhi: New Age International (P) Ltd. Publishers.
2. Saxena, R., & Srivastava, R. (2003). Entomology at a glance. Udaipur: Agrotech Publishing

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House.
3. Srivastava, K. (2005). Text Book of Applied Entomology. Vol. I. New Delhi: Kalyani Publishers.
4. Srivastava, K. (2004). Text Book of Applied Entomology. Vol. II. New Delhi: Kalyani Publishers.
5. Raghavaiah, G., & Ramesh Babu, T. (2012). Study Material for Insect Ecology and Integrated Pest Management [Ebook]. Hyderabad: Department of Agricultural Entomology, Acharya N.G. Ranga Agricultural University.

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Course 5: Enhancing Soft Skills and Personality

Course Details:	The course aims to cause an enhanced awareness about the significance of soft skills in professional and inter-personal communications and facilitate an all-round development of personality. Hard or technical skills help securing a basic position in one's life and career. But only soft skills can ensure a person retain it, climb further, reach a pinnacle, achieve excellence, and derive fulfilment and supreme joy. Soft skills comprise pleasant and appealing personality traits as self-confidence, positive attitude, emotional intelligence, social grace, flexibility, friendliness and effective communication skills.
Course Duration	8 weeks
Link to the course	https://onlinecourses.nptel.ac.in/noc21_hs02/preview
Course Layout:	
Week	Syllabus
1	Highlights of Developing Soft Skills and Personality Course-1-24 Highlights of Developing Soft Skills and Personality Course-25-48 Definitions and Types of Mindset Learning Mindsets Secrets of Developing Growth Mindsets
2	Importance of Time and Understanding Perceptions of Time Using Time Efficiently Understanding Procrastination Overcoming Procrastination Don't Say "Yes" to Make Others Happy!
3	Types of People How to Say "No" Controlling Anger Gaining Power from Positive Thinking-1 Gaining Power from Positive Thinking-2
4	What Makes Others Dislike You? What Makes Others Like You?-1 What Makes Others Like You?-2 Being Attractive-1 Being Attractive-2
5	Common Errors-1,2,3,4,5

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6	Humour in Communication Humour in the Workplace Function of Humour in the Workplace Money and Personality Managing Money
7	Health and Personality Managing Health-1: Importance of Exercise Managing Health-2: Diet and Sleep Love and Personality Managing Love
8	Ethics and Etiquette Business Etiquette Managing Mind and Memory Improving Memory Care for Environment Highlights of the Course

Reference Material:

1. Dorch, Patricia. What Are Soft Skills? New York:Execu Dress Publisher, 2013.
2. Kamin, Maxine. Soft Skills Revolution: A Guide for Connecting with Compassion for Trainers,Teams, and Leaders. Washington, DC: Pfeiffer &Company, 2013.
3. Klaus, Peggy, Jane Rohman& Molly Hamaker.The Hard Truth about Soft Skills. London:HarperCollins E-books, 2007.
4. Petes S. J., Francis. Soft Skills and ProfessionalCommunication. New Delhi: Tata McGraw-HillEducation, 2011.
5. Stein, Steven J. & Howard E. Book. The EQ Edge: Emotional Intelligence and Your Success.Canada: Wiley & Sons, 2006.

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