Vishnu Waman Thakur Charitable Trust's

Bhaskar Waman Thakur College of Science,
Yashvant Keshav Patil College of Commerce,
Vidhya Dayanand Patil College of Arts,
(▽I▽▲ College)

Introduction to Bio Mathematics and Biostatistics (CC-IBMB)

Vishnu Waman Thakur Charitable Trust's
Bhaskar Waman Thakur College of Science,
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Vidhya Dayanand Patil College of Arts,
VIVA College
(NAAC ACCREDITED-'B' Grade, CGPA 2.69)

DEPARTMENT OF BIOTECHNOLOGY IN ASSOCIATION WITH IQAC

ORGANISES

CERTIFICATE COURSE

Topic:-
Introduction to BioMathematics and Biostatistics.

February to April 2023

COURSE DURATION : 30 HOURS

Location: Room no. 729, 7 th floor, New VIVA College

Contact us
1) Mrs. Archana Malpathak - 7028417357
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(VIVA College)
(AffiliatedtoUniversity ofMumbai)

DepartmentofBiotechnologyandBiostatisticscertificatecourse on IntroductiontoBioMathematics -Biostatistics2023 Syllabus

30-houradd-oncoursesyllabusforBioMathematicsinvolvescombiningprinciplesfrom biology and mathematics.

CourseTitle:IntroductiontoBioMathematicsandBiostatistics Course

Description:

ThiscourseexplorestheinterdisciplinaryfieldofBioMathematics,integratingprinciplesfrom biology and mathematics to analyze and model biological phenomena. Topics include mathematical modeling of biological processes, statistical analysis of biological data, and the application of mathematical tools in solving biological problems.

WEEK1:Introductionto BioMathematics

- OverviewofBioMathematics:Definition,scope,andapplications
- Historicaldevelopmentandkeycontributions
- Importanceofquantitativeapproachesinbiology

WEEK 2: Mathematical Tools for BioMathematics

- Reviewofrelevantmathematicalconcepts(algebra,calculus,differentialequations)
- Introductiontoprobabilityandstatisticsinbiologicalcontexts
- Linearalgebraapplicationsinbiological systems

WEEK3: Population Dynamics

- Logisticgrowthmodels
- Predator-preyinteractions
- Competition models
- P-Value, Z-test,t-test, NormaldistributionforpopulationDynamics.

WEEK4: DataAnalysisinBiology

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- Experimentaldesignand datacollection
- StatisticalanalysisP-Value,Z-test,t-test,Normal distributionforbiologicaldata.
- Testingof Hypothesis
- Null-Hypothesis,
- Alternativehypothesis

WEEK5:GeneticsandBioinformatics

- Mendeliangeneticsandprobability
- Introductiontogenetic modeling
- Basicsofbioinformatics andcomputationalbiology

WEEK6:ResearchProject

- Formulationofasmall-scale BioMathematicsresearchproject
- Datacollectionandanalysis
- Presentationoffindings

WEEK7: EthicalConsiderations inBioMathematics

- Ethicalissuesinbiologicalresearch
- Discussiononbioethicalcase studies

FinalExamandCourse Wrap-Up

- Finalexamcoveringthe entirecoursecontent
- Reflectiononthecourse andfeedback
- Certificatedistribution

Name&SignatureofCourse Coordinator

Name&SignatureofHOD/ Coordinator