

**GBO 281: ADVANCES IN PLANT AND ANIMAL BIOTECHNOLOGY (3 CREDITS)**

**Prerequisite:** Molecular Biology

**Course Objectives**

The course is designed to provide a comprehensive exposure to advances in animal and plant biotechnology. Student is expected to have a clear understanding of basic biotechnology techniques to learn recent advances in the field.

**Student Learning Outcomes**

Students will learn to combine previously acquired knowledge of biotechnology to understand the advance application in human welfare.

**Module I**

General features of eukaryotic expression and vector systems. Gene transfer to animal cells Transgenic mice methodologies, Transgenic poultry, Transgenic Fish, Embryo transfer technology, Gene targeting, Cloning live stock by nuclear transfer, Transgenic live stock, Ethics of cloning Disease resistant transgenics, animal models for disease study, Pharming, improving milk quality, improving traits, Xenografts, Toxological applications, knock outs

**Module II**

Strategies for Introducing Biotic and Abiotic Stress Resistance/Tolerance Bacterial resistance; Viral resistance; Fungal resistance; Insects and pathogens resistance; Herbicide resistance; Drought, salinity, thermal stress, flooding and submergence tolerance Genetic Engineering for Plant Architecture and Metabolism Seed storage proteins; Protein engineering; Vitamins and other value addition compounds; Source-sink relationships for yield increase; Post-harvest bioengineering; Plant architecture; Flowering behavior Plants as Biofactories Concept of biofactories; Fermentation and production of industrial enzymes, vitamins and antibiotics and other biomolecules; Cell cultures for secondary metabolite production; Production of pharmaceutically important compounds; Bioenergy generation

**Module III**

Models used in genetics and genomic studies Zebra fish and *A. Thaliana*. Plant and animal genetic resources; Animal and Plant breeders rights (PBRs) and farmers rights

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25/6/18

Time table file

**GOA UNIVERSITY**  
**SCHOOL OF BIOLOGICAL SCIENCES AND BIOTECHNOLOGY**  
**M.Sc. Biotechnology**  
**Semester-III (2022-2023)**

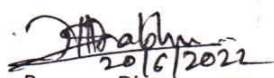
**Time table**

Time table								
	09:30-10:30	10:30 - 11:30	11:30-12:30	12.30-1:30	1:30 - 2:30	14:30-15:30	15:30-16:30	16:30-17:30
Mon	GBC 191: Lab I SS/*			GB0 288 MP	L U N C H  B R E A K	GBC 192: Lab II DM/*		
Tue	GBC 191: Lab I SS/*			GB0 286 DM		GBC 192: Lab II DM/*		
Wed	GB0 381 SK/SG/DT/MP/DM		GB0 281 MP	GB0 288 DM		GB0 184: Lab VI SG		GB0 381 SK/SG/DT/MP/D M
Thurs	GB0 282 SG	GB0 288 MP/DM	GB0 281 DT	GB0 381 SK/SG/DT/ MP/DM		MIO 101 JN	MIO 101 JN	GB0 381 SK/SG/DT/MP/D M
Fri	GB0 282 SG	GB0 281 MP/DT/*	GB0 381	GB0 286 DM		GB0 190 MP	GB0 190 MP	MIO 101 LG
Sat	GB0 381 SK/SG/DT/MP/DM					GB0 381 SK/SG/DT/MP/DM		

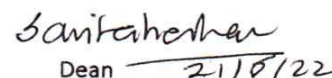
Paper Code	Paper Title	Credits	Coordinator
GBC 191	Lab I: Techniques in Microbiology & Immunology	3	SS/*
GBC 192	Lab II: Biochemical and Analytical Techniques	3	DM/*
GB0 184	Lab VI: Bioinformatics	1	SG
GB0 286	Developmental Biology	2	DM
GB0 281	Advances in Plant & Animal Biotechnology	3	MP/DT/*
GB0 288	Enzymes: Chemistry & Applications	3	MP/DM
GB0 282	Bioinformatics	2	SG
GB0 190	Environmental Biotechnology	2	MP
MIO 101	Medical Virology	3	LG/JN
GB0 381	Dissertation		SK/SG/DT/MP/DM

**Faculty:**

SG: Prof. Sanjeev C. Ghadi, SK: Prof. Savita Kerkar SS: Dr. Sanika Samant  
 DT: Dr. Dharmendra Tiwari MP: Dr. Meghanath Prabhu DM: Ms. Dviti Mapari  
 \*: Contractual faculty LG: Dr. Lata Gawade JN: Dr. Judith Noronha

  
 Program Director,  
 M.Sc. Biotechnology

  
 Vice Dean (Academics)  
 SBSB

  
 Dean  
 SBSB

Paper \_\_\_\_\_ (Advances in Plants)  
(No.) \_\_\_\_\_ Animal Bio. & Ecology

(No.)

Teacher's Name Dr. Titu (Dr. M. Prabhu & Ms. Sneha)

GOA UNIVERSITY  
ATTENDANCE SHEET

Class : M.A. / M.COM / M.C.A. / M.M.S. / M.SC.

Academic Year 2022-23

Term I / II / Months

Total number of lectures delivered by the teacher during the term / Months

[illegible]

NOTE: - (a) The students shall not raise signatures against their respective colleges at more than one place.





**Goa University**

Taleigao Plateau, Sub Post Goa University, Goa 403206 India.

ISA MARKS INPUT FORM FOR POST GRADUATE CHOICE BASED CREDIT COURSE ( OA-18A ) EXAM TO  
BE HELD IN NOVEMBER 2022

**MASTER OF SCIENCE IN MARINE BIOTECHNOLOGY**

Paper Code: GBO 281

Paper Name: Advances in Plant & Animal Biotechnology

Credits Allotted: 3

Max Marks:

30.00

SEMESTER III - 2ND YEAR November 2022

College/Department : School of Biological Sciences & Biotechnology (SBSB)

Subject Branch :

SNo	Seat No	Student Name	ISA(30.00)
1	21P05000 1	AAYUSHI JAIN    202101502	22.50
2	21P05001 5	NIVETHA JANANI V    202110082	19.50
3	21P05001 6	O KRUPA VARAPRASAD    202101512	20.00
4	21P05001 7	RITU VERMA    202105981	18.25
5	21P05002 0	SANJAY S    202110080	17.75

Certified that all the sub components have been taken into account while finalising the above marks.

NAME OF EXAMINER 1:

*Dr. T. T. T.*

SIGNATURE OF EXAMINER 1:

*[Signature]*

NAME OF EXAMINER 2:

*Dr. B. B. B.*  
*Ms. Sneha Bhomkar*

SIGNATURE OF EXAMINER 2:

*[Signature]*

Date: / /

N.B.NOTE: Department may kindly confirm that the above details are correct with reference to paper title, paper code and number of credits.

<< Absentees should be marked as 'A'(without quotes) >>

<< Carry forward of marks should be indicated as 'CF' (without quotes) in marks column.>> for ISA

Certified that all the sub components have been taken into account while finalising the above marks.



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SEA MARKS INPUT FORM FOR POST GRADUATE CHOICE BASED CREDIT COURSE ( OA-18A ) EXAM TO  
BE HELD IN NOVEMBER 2022  
**MASTER OF SCIENCE IN MARINE BIOTECHNOLOGY**

Paper Name: Advances in Plant & Animal Biotechnology  
45.00 SEMESTER III - 2ND YEAR November 2022

er Code: GBO 281

redits Allotted: 3

Max Marks:

College/Department : School of Biological Sciences & Biotechnology (SBSB)

Subject Branch :

Sl. No	Seat No	SEA(45.00)
1	21P05000	27.25
5	21P05001	21.25
6	21P05001	25.75
7	21P05001	23.50
5	21P05002	21.75

Certified that all the sub components have been taken into account while finalising the above marks.

NAME OF EXAMINER 1: *Dr. Funes*

SIGNATURE OF EXAMINER 1: *[Signature]*

Date: 1 / 1 / 2022

NAME OF EXAMINER 2: *Dr. Prabhu*  
*Ms. Sneha Bhomkar*

SIGNATURE OF EXAMINER 2: *[Signature]*

N.B.NOTE: Department may kindly confirm that the above details are correct with reference to paper title, paper code and number of credits.

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<< Carry forward of marks should be indicated as 'CF' (without quotes) in marks column.>> for ISA  
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