

Teaching Assignment Spring Semester (Jan Session: 2025-26)

Course code	Title	Instructor (Dr/Prof)	Tutor
CORE COURSES			
1xx Courses			
BIO102	Genetics and evolution	N. G. Prasad	
BIO112	Biology lab II	N. G. Prasad, Sudip Mandal, Vinesh Shenoj Naresh	
CHM102	Basic organic chemistry	Sugumar Venkataramani	
CHM112	Chemistry lab II	S. S. V. Rama Sastry, Raj Kumar Roy	
MTH102	Probability and statistics	Shane D'Mello	
HSS102	Concepts in humanities and social sciences	Ritajyoti Bandyopadhyay, Parth R. Chauhan, Debdulal Saha	
PHY102	Electromagnetism	Arvind	Sanjeev Kumar, Rajeev Kapri
PHY112	Physics lab II	Vishal Bhardwaj	Kamal Priya Singh, Paramdeep Singh Chandi
EES102	Introduction to environmental sciences	Baerbel Sinha, Sunil A. Patil	
2xx Courses (premajor, mandatory for respective prepmajors)			
IDC212	Ethics in research	Shamasundar K R	
BIO203	Ecology and behaviour	Manjari Jain	
BIO204	Bioinformatics and bioengineering	Sashi Bhushan Pandit Purnananda Guptasarma Lolitika Mandal Rajesh Ramachandran	

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BIO212	Biology lab IV	Kritika M. Garg Rhitoban Raychoudhury	
CHM203	Chemical kinetics	Jino George	
CHM204	Electrochemistry, colloids and interfaces	Arijit Kumar De Anghsuman Roy Choudhury	
CHM212	Chemistry lab IV	Ujjal K. Gautam, Samrat Ghosh	

MTH204	Symmetry	Tanusree Khandai	
MTH205	Analysis in one variable	Varadharaj Ravi Srinivasan	
MTH206	Introduction to ordinary differential equations	Jotsaroop Kaur	
PHY203	Thermodynamics and statistical physics	Goutam Sheet	
PHY204	Modern physics	Ananth Venkatesan	
PHY212	Physics lab IV	Kavita Dorai	Sanjeev Kumar, Rajeev Kapri
EES203	Geochemistry	Anoop Ambili	
EES204	Remote sensing and GIS	Chandrakant Ojha, Meenakshi Devi	
EES212	Remote sensing and GIS lab	Yunus Ali Pulpadan, Meenakshi Devi	

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IDC course options available for MS24 (only one of the following to be chosen depending on the premajor)			
Course code	Title	Instructor (Dr/Prof)	Tutor
MTH206 Available for students (as an IDC) who do not take Mathematics as a pre-major.	Introduction to ordinary differential equations	Jotsaroop Kaur	
IDC201	Astronomy and astrophysics	Jasjeet Singh Bagla	
IDC214	Quantitative estimates in soft matter	Sabyasachi Rakshit	

SEMINAR COURSES (Major) Mandatory courses for respective batches			
IDC352 (applicable from MS23)	Basics of science communication	Purnananda Guptasarma, Ravi Suresh Devani (BIO) Amit Kulshrestha (MTH) Tripta Bhatia (PHY) Balanarayan Pananghat, Sajal Kumar Giri (CHM) To be added (EES)	
IDC452 (applicable to MS22) IDC452 (applicable to Int-PhD of DPS, DMS, DBS)	Seminar delivery	Mahak Sharma, Rachna Chaba (BIO) Pranab Sardar (MTH) Tripta Bhatia (PHY) Kuduva R. Vignesh (CHM)	
IDC602 (applicable only to all)	Seminar delivery	Debdulal Saha	

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HSS PhD students)			
MAJOR COURSES			
Biology Major Courses (BIO3XX) (from MS22 batch onwards (Monsoon Semester 2024 onwards) all theory BIO3XX and BIO4XX and BIO6XX courses are electives but practical/lab courses are mandatory)			
Course code	Title	Instructor (Dr/Prof)	Tutor
BIO305	Advanced developmental biology	Ravi Suresh Devani, Hasan Mohammad	
BIO306	Plants: form and function	Santosh Satbhai, Ravi Suresh Devani	
BIO456 (open from 3 rd onwards)	Cancer cell biology	Sharvan Sehrawat, Jogender Singh	
BIO312A ^(a)	Developmental and physiology lab	Lolitika Mandal, Ram Yadav, Jogender Singh, Rajesh Ramachandran	
BIO312B ^(a)	Microbiology and molecular biology lab	Indranil Banerjee, Vidya Negi, Mahak Sharma, Rachna Chaba	
^(a) Students would be choosing one of the BIO312 practical.			
Biology Major Courses (BIO4XX) (all bio courses are electives from MS22) (Mandatory courses for batches up to MS21)			
BIO403	Advanced evolutionary biology	Vinesh Shenoj Naresh	
BIO404	Cellular and molecular basis of the immune response	Kausik Chattopadhyay	
BIO412	Advanced biology lab II	Samrat Mukhopadhyay, Amar Deep	
Chemistry Major Courses (CHM3XX) Mandatory courses (new syllabus applicable from MS23)			
CHM304	Quantum chemistry-II	Shamasundar K R	

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CHM305	Physical organic chemistry	Sanchita Sengupta	
Course code	Title	Instructor (Dr/Prof)	Tutor
CHM306	Transition metal chemistry	Pritam Mondal	
CHM312	Inorganic chemistry lab	Debashis Adhikari	

Chemistry Major Courses (CHM4XX)			
Mandatory courses (old syllabus as per website, applicable up to MS22)			
CHM403	Analytical chemistry	Subhabrata Maiti	
CHM404	Statistical thermodynamics	Ramesh Ramachandran	
CHM412	Analytical chemistry lab	Angshuman Roy Choudhury	
Mathematics Major Courses (MTH3XX)			
Mandatory Courses			
MTH305	Complex analysis	Chandrakant Sharma Aribam	
MTH306	Lebesgue measure and integration theory	Soma Maity	
MTH307	Topology	Mahender Singh	
MTH308	Rings and modules	Abhik Ganguli	
Physics Major Courses (PHY3XX)			
Mandatory courses			
PHY304	Statistical mechanics	Dipanjan Chakraborty	
PHY306	Advanced quantum mechanics	Ambresh Shivaji	
PHY312	Advanced electronics and instrumentation lab	Satyajit Jena, Samir Kumar Biswas, Paramdeep Singh Chandi	
Physics Major Courses (PHY4XX)			
PHY412	Condensed matter physics lab	Mandip Singh, Kamal Priya Singh, Kinjalk Lochan,	

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EES Major Courses (EES3XX)			
Course code	Title	Instructor (Dr/Prof)	Tutor
EES302	Quantitative data analysis in earth and environmental sciences	Baerbel Sinha, Chandrakanta Ojha,	
EES312	Applied cartography and field mapping	Yunus Ali Pulpadan, Sourabh Bhattacharya, Meenakshi Devi	

PHD COURSES			
Mathematics PhD Courses (MTH6XX)			
Mandatory courses			
MTH610 (only for PhD and int-PhD student, it is a mandatory course)	Research methodology	Amit Kulshrestha	
MTH611 (only for PhD and int-PhD student, it is a mandatory course)	Research and publication ethics	Varadharaj Ravi Srinivasan	
MTH605	Topics in analysis	Lingaraj Sahu	

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Physics PhD Courses (PHY6XX)			
Mandatory courses			
Course code	Title	Instructor (Dr/Prof)	Tutor
PHY672 (only for PhD and int-PhD students, it is a mandatory course)	Research methodology	Jasjeet Singh Bagla	
PHY673 (only for PhD and int-PhD students, it is a mandatory course)	Research and publication ethics	Jasjeet Singh Bagla	
PHY603	Review of statistical mechanics	Yogesh Singh	
PHY604	Review of quantum mechanics	Ramandeep Singh Johal	

ELECTIVE Courses			
IDC courses			
IDC402	Nonlinear dynamics, chaos, and complex systems	Anil Kumar Dasanna	
IDC306	Biocomputing	Shashi Bhushan Pandit	
IDC403	Protein engineering	Purnananda Guptasarma	
IDC411	School science curriculum and textbooks	T.V. Venkateswaran and additional instructors to be added	
IDC410	Machine learning	Sashi Dugad	
IDC621	Modelling complex systems	Sudeshna Sinha	

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Course code	Title	Instructor (Dr/Prof)	Tutor
IDC622	Physical basis of medical diagnostics	Samir Kumar Biswas	
IDC632	Introduction to atmospheric chemistry and physics	Vinayak Sinha	
IDC638	Ultrafast spectroscopy in physics, chemistry and biology	Arijit Kumar De	

Earth and Environmental Sciences Courses (EES4XX) (electives)			
EES405	Climate data analysis and visualization	Raju Attada, Jyotima Kanaujia	
EES408	Igneous and metamorphic petrology	Sourabh Bhattacharya	
EES414	Public and environmental health science	Arvind Kumar Shakya	
EES419	Applied palaeontology	Harsha Dhiman	

Humanities & Social Sciences (electives)			
Course code	Title	Instructor (Dr/Prof)	Tutor
HSS641 (mandatory for HSS PhD students)	Research methods	V. Rajesh	
HSS657 (mandatory and only for HSS PhD students)	Research and publication ethics	Debdulal Saha	
HSS613	The social history of science in modern India, 1780-1950	V. Rajesh	
HSS622	Cities: Urban theory and laboratory	Ritajyoti Bandyopadhyay	

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Course code	Title	Instructor (Dr/Prof)	Tutor
HSS628	Epistemology of science	Philose Koshy	
HSS639 (only for PhD students)	Advanced theory and method in paleoanthropology	Parth R. Chauhan	
HSS640 (only for PhD students)	Charlie Chaplin's aesthetic universe	Adrene Freeda D'Cruz	
HSS645	World cinema	Adrene Freeda D'Cruz	
HSS646	Principles of economics	Debdulal Saha	
HSS654	Philosophy of language	Philose Koshy	
HSS658	Organized loneliness in the 21 st century	Pritika Nehra	
HSS642	Science and society	T.V. Venkateswaran and additional instructors to be added	
HSS620 (Only for HSS PhDs & those wanting to complete Indian History minor in MS21 & MS22)	Imagining India: an intellectual history of orientalism	V. Rajesh	

Earth and Environmental Sciences (electives)

Course code	Title	Instructor (Dr/Prof)	Tutor
EES636	The quaternary period-environments, animals adaptations during the last 2.5 million years	Parth R. Chauhan	
EES640	Global tectonics	Sharmila Bhattacharya	
EES646	Environmental aquatic chemistry	Manoj Kumar	

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Chemical Sciences (electives)

Course code	Title	Instructor (Dr/Prof)	Tutor
CHM635 (only for PhD and int-PhD student, it is a mandatory course) (mandatory for EES PhD students as well).	Research and publication ethics	Sanjay Mandal Shamasundar K R Ujjal K. Gautam R. Vijaya Anand	
CHM604	Advanced organic chemistry	R. Vijaya Anand	
CHM608	Advanced industrial chemistry	Sanjay Mandal	
CHM609	Polymer chemistry	Raj Kumar Roy	
CHM612	Asymmetric synthesis and catalysis	S. Arulananda Babu	
CHM613	Supramolecular chemistry	Santanu Kumar Pal	
CHM616	Theoretical and computational chemistry	Priyakumari C P	
CHM629	Magnetochemistry	Kuduva R. Vignesh	
CHM630	Inorganic polymers, rings, macrocycles and cages	Sanjay Singh	
CHM632	Spectroscopic methods for inorganic chemistry	Suman K Barman	

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Physical Sciences (electives)

Course code	Title	Instructor (Dr/Prof)	Tutor
PHY425	Computational methods in physics II	Pankaj Kushwaha	
PHY631	Quantum computation and quantum information	Manabendra Nath Bera	
PHY635	Gravitation and cosmology	Harvinder Kaur Jassal	
PHY646	Quantum field theory and the standard model	K. P. Yogendran	
PHY652	Phase transition and critical phenomena	Prasenjit Das	
PHY654	Astrophysics II: galaxies and cosmology	Biman Nath	
PHY662	Statistical physics of fields	Abhishek Chaudhuri	
PHY665	Quantum phases of matter and phase transitions	Debmalya Chakraborty	
PHY666	Open quantum systems	Sandeep K. Goyal	
PHY669	Astronomical techniques	Eswaraiah Chakali	
PHY677	Quantum fields in curved spacetime	Kinjalk Lochan	

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Mathematical Sciences**Directed Electives to be offered compulsorily**

(8th semester MTH students have to choose one out of the following courses mandatorily)

Course code	Title	Instructor (Dr/Prof)	Tutor
MTH409	Discrete mathematics	Chanchal Kumar	
MTH410	Algebraic topology	Mihir Sheth	
MTH440	Partial differential equations	Santhosh Kumar Pamula	

Mathematical Sciences (electives)

MTH443	Game theory	Chetan Tukaram Balwe	
MTH435	Random processes	Neeraja Sahasrabudhe	
MTH426	Algebraic curves	Vaibhav Vaish	
MTH420	Linear operators in Hilbert spaces	Arghya Mondal	
MTH418	Fuchsian groups	Pranab Sardar	

Biological Sciences (electives)

BIO456 (open from 3 rd onwards)	Cancer cell biology	Sharvan Sehrawat, Jogender Singh	
BIO454 (open from 3 rd onwards)	Neuroscience	Samarjit Bhattacharyya	
BIO630 (open to 4 th year students)	Epigenetics	Sadhan Das	
BIO606	Biostatistics	Kuljeet Sandhu	
BIO609	Immunology	Arunika Mukhopadhaya	

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BIO612	RNA biology	Shravan Kumar Mishra	
Course code	Title	Instructor (Dr/Prof)	Tutor
BIO635	Regeneration biology	Rajesh Ramachandran	
BIO637	Research methodology	Kuljeet Sandhu, Hriday Kant Dewan(invited)	
BIO614	Topics in evolutionary biology	Vinesh Shenoj Naresh	

CHM102 (old course for batches up to MS22) Will run for the last time and all interested student should take it	Atoms molecules and symmetry	Balanaryan P.	
CHM304 (old course for batches up to MS22) Will run for the last time and all interested student should take it	Symmetry in chemistry	Sajal Kumar Giri	

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