Department of Biotechnology

Faculty of Engineering & Technology

Circular

Dated: 4.01.2021

The Department of Biotechnology, Faculty of Engineering and Technology, Rama University took the initiative to spread the Skill of Molecular Biology and Bioinformatics to motivate students by organizing a short term course. It will include interactive sessions; detailed practical practices, team to undertake building exercises for students to generate ideas and identify their strengths in the area of molecular biology and bioinformatics, etc. All students whether from Biotechnology engineering, Life sciences , biotechnology or other background are invited to take part in the course. The participating students will be honored with certificates of participation of Department of Biotechnology, Faculty of Engineering and Technology, Rama University.

NOTE: 1) Registrations open.

2) Venue- Department of Biotechnology, Faculty of Engineering and Technology, Rama University.

3) Deadline to Register- 21 January 2021

4) Course Date- 2 February to 20 February 2021.

5) Timings – 10 AM TO 12 PM

For more details, contact Dr. Anand Kumar (9411091380). All students interested in illuminate can contact team on above contact numbers.

4/1/2021

Dr. Ajay Kumar

HoD Biotechnology

HOD
Biotechnology
FET, Rama University

Prabhat Ranjan

Digitally signed by Prabhat Ranjan
DN: CN=, OI=Personal, T=1954, OID.2.5.4.65=2018f09303eb951a0eb85c7601c4e, Power=No|h=2|345|off|a8926|hd=0|Vc4d|Cs2|1|1477753|w3|74|c4e4b|s79d5f20b, InstallCode=226301, S=Uttar Pradesh, SERIALNUMBER=71cdb2186d6b51f3bf4f05f2c2d917c1c4297f9619d8071ce1c4bdd2, CN=Prabhat Ranjan
Reason: your signing reason here
Location: your signing location here
Date: 2024.03.21 11:16:57+05'30'
Foxit PDF Reader Version: 2024.1.0

DEPARTMENT OF BIOTECHNOLOGY

Date: 04.01.2021

To,

The Dean (Academic Affairs)

Rama University, Kanpur

Subject: Regarding approval on the ordinance for running a short term course.

Sir,

I am hereby forwarding ordinance of short term course from department of Biotechnology. The course will be started in the month of January 2021 as per SOP. The short term course entitled **"Molecular biology & Bioinformatics"** will be of 30 hours. The course will be conducted in class room and lab of Biotechnology and suggested fee is 2000 participants.

I am hereby requesting you to go through the ordinance and suggest if any changes required for approval.

Thanking you in anticipation

Prabhat Ranjan

Digitally signed by Prabhat Ranjan
DN: C=IN, O=Personal, T=1954, OID.2.5.4.65=2016695902eb4f51a5eb0455c7601c4e, Email=1b3=13456ef1a6d928e4bf9044dc0a5316477752e4b37e0ceb4dc7b485926, PostalCode=226001, S=Uttar Pradesh, SERIALNUMBER=5bf400aa4751cdb2486d66518d9f93c2c2d917c1c6979761388071ce1c6bd2, CN=Prabhat Ranjan
Reason: your signing reason here
Location: your signing location here
Date: 2024.03.21 11:16:57+05'30'
Foxit PDF Reader Version: 2024.1.0

Note Sheet

Rama University
Uttar Pradesh,
Kanpur
Department: Office of the Dean Academic Affairs
Ref No: RU/DAA/2021/

Dean- Academic Affairs
Rama University Uttar Pradesh
Kanpur

Prabhat Ranjan

Digitally signed by Prabhat Ranjan
DN: CN=, O=Personal, T=1954, OID.2.5.4.65=2016f95902eb4f51a5eb5f5c7601c4e, Pseudonym=b3=1234SmtLab3Db84e4f4f0f4d4dCa5314777f32e4b37e4ceb4da7b485f26, PostalCode=226001, S=Uttar Pradesh, SERIALNUMBER=5df4f0ae475.1e8b2b8fb8651838ef4f30c23d917c1c4379704138807 1ce1c4bd2, CN=Prabhat Ranjan
Reason: your signing reason here
Location: your signing location here
Date: 2024.03.21 11:16:57+05'30'
Foxit PDF Reader Version: 2024.1.0

Department of Biotechnology
Faculty of Engineering & Technology
Short Term Course- February 2021

Molecular Biology & Bioinformatics

Time Table

Date/Day	10:00- 11:00 am	11:00-12:00 noon	12:00- 1:00 am
2nd Feb'21/ Tuesday	Theory on regulatory agencies, handling and storage of, chemicals, microbes and preservation	Laboratory safety, molecular biology laboratory equipments (Theory)	Measurements, solutions and calculations (Theory)
3rdFeb'21/ Wednesday	Theory on Isolation of genetic materials from different sources	Isolation of DNA from plants. (Part-1)	Isolation of DNA from plants. (Part-1)
4thFeb'21/ Thursday	Isolation of DNA from plants (Part-2)	Isolation of DNA from plants (Part-2)	DNA purity check
5thFeb'21/ Friday	Isolation of DNA from Bacteria (Practical)	Isolation of DNA from Bacteria (Practical)	Isolation of DNA from Bacteria (Practical)
6thFeb'21/ Saturday	Isolation of DNA from Animals (Practical)	Isolation of DNA from Animals (Practical)	Isolation of DNA from Animals (Practical)
8thFeb'21/ Monday	Agarose gel electrophoresis theory	Agarose gel electrophoresis practical	Agarose gel electrophoresis practical
9thFeb'21/ Tuesday	SDS-PAGE Theory	SDS-PAGE Practical	SDS-PAGE Practical
10thFeb'21/ Wednesday	Introduction to Biological databases	Methods of sequence alignment	Sequence Analysis, NCBI
11thFeb'21/ Thursday	Analysis of Multiple sequence Alignment	Analysis of Multiple sequence Alignemnt	Nucleic acid

Prabhat Ranjan

			amplification and sequencing (Theory)
12thFeb'21/ Friday	PCR (Theory)	PCR (Practical)	PCR (Practical)
13thFeb'21/ Saturday	PCR Sample run on agarose gel electrophoresis	PCR Sample run on agarose gel electrophoresis	PCR Sample run on agarose gel electrophoresis
15th Feb'21/ Monday	Protein Expression (Theory)	Protein Detection (Theory)	Protein analysis (Theory)
16th Feb'21/ Tuesday	Protein Purification (Theory)	Protein Purification (Theory)	Protein Purification (Theory)
17th Feb'21/ Wednesday	LAF, Autoclave	Spectrophotometer (Theory)	Spectrophotometer (Practical)
18th Feb'21/Thursday	Phylogenetic analysis	Phylogenetic analysis	Phylogenetic analysis
19th Feb'21/Friday	Restriction Endonulease Digestion of DNA (Theory)	Restriction Endonulease Digestion of DNA (Theory)	Restriction Endonulease Digestion of DNA (Theory)
20th Feb'21/Saturday	Practice	Practice	Practice

12/01/2021

Dr. Ajay Kumar

HoD Biotechnology

HOD
Biotechnology
FET, Rama University
Kanpur

Prabhat Ranjan

Digitally signed by Prabhat Ranjan
DN: CN=, O=Personal, T=1954, OID.2.5.4.65=2016895902eb4f51a5eb0d55c7601c4e, Phone=+91+1245Set1a6fd6284fe4f4f0fddd42af3314777f32edb37e0ceb4da7b8f5f26, PostalCode=226001, S=Uttar Pradesh, SERIALNUMBER=5bf4f0bae4751cdb2d8fd6631fdbff4f30c21d457c1c43797f413887f1ce1c4bd02, CN=Prabhat Ranjan
Reason: your signing reason here
Location: your signing location here
Date: 2024.03.21 11:16:57+05'30'
Foxit PDF Reader Version: 2024.1.0

Department of Biotechnology

Short Term Course on Molecular biology and Bioinformatics-2021

S.No	Name of Students / Time	2/2/2021 10:00-1:00PM	3/2/2021 10:00-1:00PM	4/2/2021 10:00-1:00PM	5/2/2021 10:00-1:00PM	6/2/2021 10:00-1:00PM	8/2/2021 10:00-1:00PM	9/2/2021 10:00-1:00PM	10/2/2021 10:00-1:00PM	11/2/2021 10:00-1:00PM	12/2/2021 10:00-1:00PM	13/2/2021 10:00-1:00PM	15/2/2021 10:00-1:00P	16/2/2021 10:00-1:00P	17/2/2021 10:00-1:00PM	18/2/2021 10:00-1:00P	19/2/2021 10:00-1:00P	20/2/2021 10:00-1:00PM
1	Abhishek Kumar Yadav	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
2	Anil Pal	P	P	P	P	P	P	P	P	P	P	P	P	P	A	P	P	P
3	Anushka Chaturvedi	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
4	Dheeraj Saham	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
5	Neha Singh	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
6	Rinku Rajput	P	P	P	A	P	P	P	P	P	P	P	P	P	A	P	P	P
7	Sadhana Modanwal	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
8	Sandeep Yadav	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
9	Srishty Pandey	P	P	P	P	P	A	P	P	P	P	P	P	P	P	P	P	P
10	Subhash Rawat	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
11	Arti Kasaudhan	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
12	Khushi Saini	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
13	Pragati Porwal	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
14	Pooja gupta	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
15	Priya Mishra	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
16	Priyanka Srivastava	P	P	P	P	P	P	P	P	P	P	A	P	P	P	P	P	P
17	Anurada Rajawat	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P
18	Shreesh Dubey	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P

HOD
Biotechnology
FET, Rama University
Kanpur

List of Students participated in Short term Course on Molecular Biology & Bioinformatics (2020-21)

Sr. No.	Name	Roll No.
1	Abhishek Kumar Yadav	1701506001
2	Anil Pal	1701506002
3	Anushka Chaturvedi	1701506003
4	Dheeraj Sahani	1701506004
5	Neha Singh	1701506006
6	Rinku Rajput	1701506007
7	Sadhana Modanwal	1701506008
8	Sandeep Yadav	1701506009
9	Srishty Pandey	1701506010
10	Subhash Rawat	1701506011
11	Arti Kasaudhan	1801506201
12	Khushi Saini	1801506010
13	Pragati Porwal	1801506016
14	Pooja gupta	1801506015
15	Priya Mishra	1801506018
16	Priyanka Srivastava	1801506019
17	Anurada Rajawat	1801506002
18	Shreesh Dubey	1801506026

Prabhat Ranjan

List of Students participated in Short term Course on Molecular Biology & Bioinformatics (2020-21)

Sr. No.	Name	Roll No.	Marks
1	Abhishek Kumar Yadav	1701506001	14
2	Anil Pal	1701506002	14
3	Anushka Chaturvedi	1701506003	12
4	Dheeraj Sahani	1701506004	17
5	Neha Singh	1701506006	15
6	Rinku Rajput	1701506007	14
7	Sadhana Modanwal	1701506008	10
8	Sandeep Yadav	1701506009	14
9	Srishty Pandey	1701506010	15
10	Subhash Rawat	1701506011	11
11	Arti Kasaudhan	1801506201	18
12	Khushi Saini	1801506010	15
13	Pragati Porwal	1801506016	13
14	Pooja gupta	1801506015	11
15	Priya Mishra	1801506018	17
16	Priyanka Srivastava	1801506019	14
17	Anurada Rajawat	1801506002	15
18	Shreesh Dubey	1801506026	14

ORDINANCES GOVERNING

CAREER ORIENTED SHORT TERM COURSES

Offered by

Department of Biotechnology

Faculty of Engineering and Technology

RAMA UNIVERSITY UTTAR PRADESH, KANPUR

CONTENTS

Part: 1

Ordinance Governing

Career Oriented Short Term Courses

I. General Provisions

1. The program of study leading to Career Oriented Short Term Course (Certificate Program) of Department of Biotechnology, Faculty of Faculty of Engineering and Technology of Rama University Uttar Pradesh, Kanpur shall be of 30 hours, and shall be basically for the persons who are having interest in this field or they want to build their career in the Molecular Biology field. The program shall have the status of Add-on Skill Oriented Program under Career Oriented Sort Term Course.

2. The Certificate programs shall have the status of "Short Term Courses" of Rama University Uttar Pradesh, Kanpur and shall be governed by the general rules of the Short Term Courses.

3. The intake to the Certificate Courses shall be 30, which may be increased to 60 (Two Batches) in due course of time by a resolution of the University.

4. The Program of study leading to Career Oriented Short Term Course (Certificate Program) of the Rama University Uttar Pradesh, Kanpur shall be conducted in the Department of Biotechnology under the Faculty of Engineering and Technology during any such duration which would be appropriate.

5. The admission to Career Oriented Short Term Course (Certificate Program) shall be dealt with by the Dean, Faculty of Engineering and Technology. The last date for the receipt of the application form shall be fixed by the Dean of the Faculty.

6. The candidate seeking admission will have to apply on a prescribed format available from the University/ Faculty on payment of prescribed fee.

7. The candidate may be required to pay the processing fee as directed by the Faculty from time to time. No Application Form shall be considered for admission unless it is complete in all respects including attested copies of the photographs of the candidates containing his/her signature thereon and all necessary documents are attached thereto, such as:

a) Attested copies of mark-sheets of all the examinations passed;

b) Certificate from an appropriate authority certifying that the candidate belongs to Scheduled Caste/Scheduled Tribe/OBC or that the candidate is Physically Challenged.

8. The provisional admission to the Program shall be made in order of merit based or on the candidate's performance in TEST/GD/PI, and academic record.

9. The completed Application Forms for registration at Faculty of Engineering and Technology, Rama University Uttar Pradesh, Kanpur along with documents required under ordinance at above point 6 shall be sent to the Registrar.

10. Provisional admission cannot be claimed by any applicant as a matter of right. The provisional admission or readmission of an applicant shall be entirely at the discretion of the Admission Committee, which may refuse to admit any candidate without assigning any reason thereof.

11. Provisional admission will be made strictly on combined merit and availability of seats on the date of admission and the mere fact that call letter has been issued shall not entitle a candidate to claim admission.

12. The candidate granted provisional admission shall deposit fee within the period prescribed by the Admission Committee failing which, the admission shall stand cancelled.

13. Provisional admission of a candidate is liable to be cancelled at any time:

i) If it is detected that, there is something against the candidate which would have prevented him/her from being admitted to the Program.

ii) If the candidate is found at a later stage to have provided any false information, and /or

iii) If he/she has been punished for an act of gross misconduct, indiscipline or an act involving moral turpitude.

13. There shall be an Admission Committee for Career Oriented Short Term Course (Certificate Programs) admission, constituted under the provisions of Ordinances and consisting of the Dean or his nominee. Admission shall be made in accordance with these ordinances and the rules made there under.

A. Eligibility:

i) The candidate seeking admission to Career Oriented Short Term Course must be completed graduation in life science, biotechnology, agriculture, etc. from any university/Institute.

B. Intake & Reservations:

The intake to Career Oriented Short Term Course shall be 30. The reservation in admission shall be as per rules.

Reservations:

SC Candidates 15 % of the intake ST Candidates 7.5% of the intake PC Candidates 3% of the intake (on horizontal reservation basis) OBC Candidates 27% of the intake

(a) The candidates seeking admission under the above categories must fulfill the minimum eligibility conditions and qualifying requirements.

(b) The SC/ ST/OBC candidates must enclose attested copy of the caste certificate along with their Application Form stating that the candidate belongs to SC/ST/OBC Category.

The following are empowered to issue SC/ST/OBC Certificates:

(I) District magistrate/ Additional District Magistrate/ Collector/ Deputy Commissioner/ Addl. Deputy Commissioner/Deputy Collector /1st Class Stipendiary Magistrate/City Magistrate/Sub Divisional magistrate/ Taluka Magistrate/ Executive Magistrate /Extra Assistant Commissioner. (ii) Chief Presidency Magistrate/ Addl. Chief Presidency Magistrate/ Presidency Magistrate. (iii) Revenue Officer not below the rank of Tehsildar. (iv) Sub-Divisional Officer of the area where the candidate and/or his family normally resides. (v) Administrator/Secretary to the Administrator/ Development Officer (Lakshadweep Islands). (vi) Candidate must note that certificate from any other person/authority shall not be accepted in any case.

(c) 3% seats on horizontal reservation basis shall be reserved for Physically Challenged Candidates (i) 1% for Visually Impaired (ii) 1% for Hearing Impaired (iii) 1% for Orthopedically Handicapped. In case no candidate is available in any of the above three sub-categories, the unfilled seats shall be filled by the candidates belonging to the remaining sub-categories.

A candidate applying under PC category must attach a certificate by CMO, District Hospital. However, he/she will be considered under PC category only after verification from the University Medical Board. Admit cards for admission shall be issued to such candidates only on production of the above-mentioned verification certificates from the Medical Board constituted by the University for the purpose.

(d) Separate final merit list will be prepared for the candidates under each of the above categories.

(e) Vacant seats reserved for SC/ST/OBC candidates, if any, may be filled up as per rules.

B. Course Fee:

a) The Program will run as a Short Term Course of Study as prescribed under the Career Oriented Short Term Course (Certificate Programs) of Rama University Uttar Pradesh, Kanpur.

b) The Short Term Course fee may vary as per the course.

II. ADMISSION PROCEDURE

1. Admission to Career Oriented Short Term Course (Certificate Programs) shall be made in order of merit.

2. The admission process may be reviewed as per need from time to time.

III. CONDUCT OF THE COURSE

1. To qualify for the Career Oriented Short Term Course (Certificate Programs), the candidate must submit the assignments/projects as contained in the Course structure / syllabus detailed herein after.

2. The students shall be permitted to simultaneously pursue any one of the proposed program at a time along with their regular diploma/degree program.

IV. ATTENDANCE RULES

(a) A student is required to have full, i.e., 100%, attendance and exemption up to 25% can be considered for specific cogent reasons. Out of this 25%, only 10% exemption will be permitted without taking any application from the student. Rest 15% exemption may be given by the Dean. The cogent reasons for exemption are given below:

(i) Participation in NCC/NSC/NSS Camps duly supported by certificate.

(ii) Participation in University or College Team Games or Interstate or Inter University tournaments, duly supported by certificate from the Secretary of the University Sports Board or President of the College Athletic Association concerned.

(iii) Participation in Educational Excursions, which form a part of teaching in any subject conducted on working days duly certified by the Dean.

(iv) University Deputation for Youth Festival duly certified by the Dean.

(v) Prolonged illness duly certified by the Medical Officer or the Superintendent, Rama Hospital, Rama University or any other Registered Medical Practitioner, provided such certificate is submitted to the Dean, Faculty of Engineering and Technology in time.

(vi) No relaxation beyond 25% shall be considered in any case.

(b) The attendance of a newly admitted candidate shall be counted from the date of his/her admission, or date of beginning of classes whichever is later, while in the case of promoted candidates, attendance shall be counted from the date on which respective class begins.

(c) There shall be an Attendance Monitoring Committee in the Faculty under the Chairmanship of the Dean.

Part: 2

Course Detail

Career Oriented Short Term Courses

I. COURSE STRUCTURE AND EVALUATION:

Candidates for the Career Oriented Short Term Course (Certificate Programs) shall be evaluated on the basis of Assignments/Projects in accordance with the syllabi or course prescribed in the Ordinance.

Course Structure

The Career Oriented Short Term Course (Certificate Programs) duration may vary on the basis course category. A student is required to complete the syllabus offer Certificate Program as per the details given below.

II. Course Syllabus:

Molecular Biology & Bioinformatics

Here are a few things you must know about the course that will help you understand the relevance and admission-related details about the course.

ABOUT THE COURSE:

- Molecular Biology and Bioinformatics is fast emerging as a leading lucrative area of research. The emerging industries need capable molecular biologist cum bioinformaticians who know practical aspects of molecular biology techniques and can successfully provide high-quality support for the development of drugs, diagnostic tools. To ensure this, the department of Biotechnology is offering a short-term course on Molecular Biology and Bioinformatics.

The aim of this course is:

To get an idea about the importance of Molecular Biology & Bioinformatics.

To gain both theoretical and practical knowledge with good laboratory practices.

To acquainted with different diagnosties and drug development industries and their quality sector.

Successful training will help the students to obtain job in respective sector.

The curriculum has been designed carefully with the help of industry experts and covers comprehensive knowledge of the subject and lab skills.

DURATION:

- Total 30 hours.

REGISTRATION FEES:

- INR 500

COURSE FEES:

- INR 1500

INSTRUCTOR:

- Dean/HoD will decide as per availability.

ELIGIBILITY:

Minimum Qualification is an undergraduate in biotechnology, biological sciences, agricultural sciences, and allied sciences.

[B.Tech. Biotechnology/ Food Technology/ Biochemical Engineering/ Biomedical Engineering, B.Sc. Biotechnology/ Biology/ AgricultureSciences, M.Sc Biotechnology/ Biochemistry/Microbiolog y/ Life Sciences/ Zoology/Botany/ Agriculture Sciences etc.]

COURSEWARE:

- Course material is provided in printed / electronic form.

MODE:

- Theory Lecture and Practical.

EVALUATION SYSTEM:

- Based on the Assignments and Final project report.

EMPLOYMENT OPPORTUNITY:

Today, various molecular biology techniques are required by several diagnostics industries. Molecular and Cell Biologists find employment opportunities in research labs established by the Government of India or in the R&D departments of various private drug companies. They can work on developing therapeutic drugs to working on stem cell research and in many other areas within the medical development field.

TARGET AUDIENCE

Pathology Lab Employee

Personnel from Industry

Personnel from Academic fields

Students and faculty of Agriculture

Students and faculty of Biotechnology

COURSE CONTENT

Methods of Isolation of Genetic material from Plants, Animals, and Bacteria.

Methods of quantification of nucleic acids & Analysis of genetic material.

Structure and function of mRNA, rRNA, tRNA

Regulatory agencies, handling & storage of chemicals, reagents, microbial specimens, and its preservation

Laboratory Safety, Molecular Biology Laboratory Equipments, Measurements, Solutions, & Calculations

DNA Restriction & Nucleic acid analysis.

Nucleic acid amplification and Sequencing, Nucleic acid Hybridization & Expression analysis, Molecular Cloning.

Protein Expression, Protein detection, and analysis, Protein Purification Techniques

Bioinformatics

Introduction to Biological Database (Gene Bank, EMBL, DDBJ, SWISS PROT)

Sequence Analysis; Methods for sequence alignment.

Dynamic programming algorithms.

NCBI, Analysis of sequence alignment of the given protein sequence.

Analysis of sequence alignment of any given gene sequence.

Analysis of Multiple sequence alignment of given protein sequences.

Phylogenetic analysis of given protein sequences.

Lab Skills

Handling of laboratory instruments used in molecular biology (Autoclave, LAF, Microscopy, Oven, UV Spectrophotometer, etc).

Genomic DNA Isolation from Plant, Animal tissue, Bacteria.

Plasmid DNA Isolation.

Nucleic acid and Protein Quantification.

Nucleic acid and protein analysis (Agarose gel electrophoresis & SDS PAGE)

Gel Documentation

DNA Amplification (Polymerase Chain Reaction)

Restriction Endonuclease Digestion of DNA.

Primer Designing for Expression

Reading frame Preparation,

Unknown Sequence BLAST, and Homology Modeling

Submission of DNA or Protein Sequence Data in Databank.

Phylogenetic analysis of given sequences

SHORT TERM COURSE ON MOLECULAR BIOLOGY & BIOINFORMATICS

About the course:

[illegible]

[illegible]

- To get an idea about the importance of Molecular Biology & Bioinformatics.
- To gain both theoretical and practical knowledge with good laboratory practices.
- To acquainted with different diagnostics and drug development industries and their quality sector
- Successful training will help the students to obtain job in respective sector.

[illegible]

DURATION: [illegible]

COURSE FEES: [illegible]

ACCOUNT DETAILS: Account Holder Name: RAMA UNIVERSITY UTTAR PRADESH

Account Number: 69682011000037

Account Type: CURRENT ACCOUNT

IFSC Code: BKID0006968

INSTRUCTOR: [illegible] dranandkumar.fet@ramauniversity.ac.in

ELIGIBILITY: Minimum Qualification is undergraduate in biotechnology, biological sciences, agricultural sciences and allied sciences.

[B.Tech. Biotechnology/ Food Technology/ Biochemical Engineering/ Biomedical Engineering, B.Sc.Biotechnology/Biology/AgricultureSciences,M.Sc.Biotechnology/Biochemistry/Microbiology/Life Sciences/Zoology/Botany/Agriculture Sciences etc.]

EXAM MODE: [illegible]

MODE: Online – Lab

EVALUATION SYSTEM: 2 Documents each paper 50 marks Interview and 50 marks practical. Score at least 50% to pass.

BATCHES 2020: Batches Start: 1st August To Nov and Dec

Application start date: 5th May 2020-25th July. Limited seats are available, registration will be [illegible]

MINIMUM AGE: No bar

MAXIMUM AGE: No bar

Today, various molecular biology techniques are required by several diagnostics industries. Molecular and Cell Biologists find employment opportunities in research labs established by Government of India or in the R&D departments of various private drug companies. They can work on developing therapeutic drugs to working on stem cell research and in many other areas within the medical development field.

TARGET AUDIENCE

- Pathology Labs [illegible]
- Personal from [illegible]
- Personal from Academics fields
- Students and Faculty of Agriculture

- Methods of Isolation of Genetic material from Plants, Animals and Bacteria.
- Methods of quantification of nucleic acids & [illegible] of genetic material.
- Structure and function of mRNA, rRNA, tRNA
- Regulatory agencies, handling & storage of chemicals, reagents, microbial specimens and its preservation
- Laboratory Safety, Molecular Biology Laboratory Equipments, Measurements, Solutions, & Calculations
- DNA Restriction & Nucleic acid analysis.
- Nucleic acid amplification and Sequencing, Nucleic acid Hybridization & Expression analysis, Molecular Cloning.
- Protein Expression, Protein detection and analysis, Protein Purification Techniques

Bioinformatics

- Introduction to Biological Database (Gene Bank, EMBL, DDBL, SWISS PROT)
- Sequence Analysis; Methods for sequence alignment.
- Dynamic programming algorithms.
- NCBL Analysis of sequence alignment of given protein sequence.
- Analysis of sequence alignment of any given gene sequence

- Analysis of Multiple sequence alignment of given protein sequences.
- Phylogenetic analysis of given protein sequences.

Lab Skills

- Handling of laboratory instruments used in molecular biology (Autoclave, UV Microscopy, Oven, UV Spectrophotometer etc)
- Genomic DNA Isolation from Plant, Animal tissue, Bacteria.
- Plasmid DNA Isolation.
- Nucleic acid and Protein Quantification.
- Nucleic acid and protein analysis (Agarose gel electrophoresis & SDS PAGE)
- Gel Documentation
- DNA Amplification (Polymerase Chain Reaction)
- Restriction Endonuclease Digestion of DNA
- Primer Designing for Expression
- Reading frame Preparation.
- Unknown Sequence BLAST and Homology Modeling
- Submission of DNA or Protein Sequence Data in Databank.
- Phylogenetic analysis of given sequences.

COURSE OUTCOME:

Modern life science industry is a broad sector and students (participants) will develop skills in various areas which will help them in getting job in industry or research organizations. Further improvement can be done by doing higher studies.

VALUE ADDED: SEMINAR – (Course Review & Assessment)

CERTIFICATE: Certificate will be provided after completion of course.

Prabhat Ranjan

RAMA UNIVERSITY

1045

CERTIFICATE OF SHORT TERM COURSE

This is to certify that

Ms. [illegible] has successfully completed

more than 30 hrs short term course on

MOLECULAR BIOLOGY & BIOINFORMATICS

conducted from 14.01.2021 to 29.03.2021 in the department

Biotechnology Faculty of *ENGINEERING & TECHNOLOGY*

Dean, Faculty of *ENGINEERING & TECHNOLOGY*

Registrar/Controller of Examinations

Prabhat Ranjan

RAMA UNIVERSITY

1045

CERTIFICATE OF SHORT TERM COURSE

This is to certify that

Mr./Ms. UNIL P.M has successfully completed

more than 30 hrs short term course on "

MOLECULAR BIOLOGY & BIOINFORMATICS

"

conducted from 11.01.2021 to 29.03.2021 in the department

BIOTECHNOLOGY Faculty of *ENGINEERING & TECHNOLOGY*

Dean, Faculty of *ENGINEERING & TECHNOLOGY*

Registrar/Controller of Examinations

Distribution of Certificate to Students (Value added course in Molecular Biology and Bioinformatics, 2020-21)