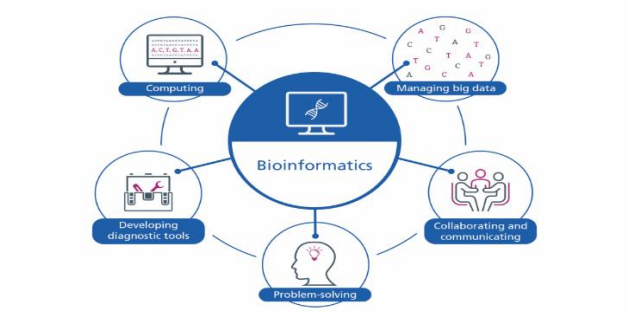
Government College for Women
Sambasiva Pet, Guntur-522001
(NAAC Accredited B++ Grade Institution)
Phone: (Off) 0863 – 222093, Fax: 0862-2230149

Department of Biochemistry

A Certificate course in Fundamentals of Bioinformatics



Course Details:

- Number of Participants: 30
- Duration of the course: 30 hours

Criteria of Assessment

- Summative: At the end of the course.

Number of Credits: 2

Eligibility Criteria to get the certificate

- 75 % attendance
- Attending Summative Assessment.
- Securing minimum of 40% marks.

The course is conducted in both offline and online modes.
Offline: Timings: 4 PM To 5 PM
Venue: Biochemistry Lab, Government College for Women (A) , Guntur
Online: Timings: 8 AM To 9 AM
Course starting date: 28-02-2023
Course ending date: 13-04-2023

PRINCIPAL
GOVT. COLLEGE FOR WOMEN (A)
GUNTUR.

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Certificate course on Fundamentals of Bioinformatics

Objective of the Course: Bioinformatics is an interdisciplinary field of science in which biology, computer science, and information technology merge to form a single discipline. It is the emerging field that deals with the application of computers to the collection, organization, analysis, manipulation, presentation, and sharing of biologic data to solve biological problems on the molecular level. The development of bioinformatics as a field is the result of advances in both molecular biology and computer science over the past 30–40 years.

Bioinformatics is mainly used to extract knowledge from biological data through the development of algorithms and software. The key areas of bioinformatics include biological databases, sequence alignment, gene and promoter prediction, molecular phylogenetics, structural bioinformatics, genomics, and proteomics.

Bioinformatics could have profound impact in fields as varied as human health, agriculture, the environment, energy and biotechnology to advance biomedical research and development preventive medicines, which are mainly focused on developing measures to prevent, control and cure dreadful infectious diseases

Course Details: Fundamentals of Bioinformatics certificate course is offered by the department of Biochemistry to the life sciences final year students of Biochemistry. 2 credits were offered for the 30 hrs certificate course. As this certificate course is beneficial to each and every student in higher education.

The syllabus of the course is framed for 30 hrs, having 20 hours for theory and 10 hours for practical part and an exam for 20 marks was conducted at the end of the course offering 2 credits.

The course started from 28th February 2023 extended upto 13th April2023 considering mid exams, sem end exams in between. Classes were taken from 4'O clock to 5'O clock during offline and 8'O clock to 9'O clock during online.

Course Outcomes:

By the end of the course, the student will able to

- *Understand the importance of Bioinformatics in this era*
- *Analyse and retrive data using various databases*
- *Predict similarity among biological molecules using databases & algorithms*

Syllabus:

UNIT I - History, Scope and Importance (5 hours)

1.1 Introduction to Bioinformatics -History & Scope
1.2 Applications of Bioinformatics
1.3 NCBI -History & Resources available at NCBI
1.4 Sequence file formats-FASTA, Genbank /NCBI,EMBL

UNIT II - Databases Tools and their Uses (8 hours)

2.1 Biological databases types- (Primary; Composite &- Secondary)
2.2 Nucleic acid sequence databases - GENBANK, DDBJ, EMBL
2.3 Protein data bases - Sequence- (swisprot) structure (PDB) databases

UNIT III - Sequence Alignment methods & predictive methods (7 hours)

3.1 Genomics (Structural, functional & comparative)
3.2 Proteomics (Structural, functional & Protein expression)
3.3 Sequence alignment algorithms - BLAST, CLUSTAL-W

Practicals: (10 hours)

1. Sequence information retrieval (protein and gene) from NCBI.
2. 3D Structural coordinates download (protein and DNA) from PDB.
3. File formats - FASTA, Genbank/NCBI, EMBL
4. BLAST suite of tools for pair-wise alignment.
5. Multiple sequence alignment using CLUSTALW.

Books for Reference:

- "Bioinformatics"- CSV Murthy, Himalaya Publishing House
- Introduction to Bioinformatics - M. Lesk Oxford University Press
- "Bioinformatics sequence and genome analysis" - David W Mount, Cold spring harbor laboratory press
- " Bioinformatics: A Modern Approach" - Vittal R. Srinivas, published by PHI Learning Private Limited

- Bioinformatics: Sequence and Genome Analysis - Mount, D.W. Cold Spring Harbor Laboratory Press

Students Enrollment List

S. No	Registration Number	Name	Group
1	20407001	B.Pravallika	BC BT C
2	20407004	Gattigunde Rathnamanasa	BC BT C
3	20407007	MENDEM RAMYA	BC BT C
4	20407006	Chandravalli.Kollikonda	BC BT C
5	20407009	M.SUREKHA DEVI	BC BT C
6	20407010	Pilli.Raji	BC BT C
7	20407012	Shaik.Tasleem	BC BT C
8	20407013	Swarna latha. Talathoti	BC BT C
9	20407014	Vinjamuri Sirisha	BC BT C
10	20407015	V. Surekha	BC BT C
11	20411001	Amarlapudi.Anusha	MB BC FT
12	20411002	Ankalla.Rupa	MB BC FT
13	20411003	D. Srujana	MB BC FT
14	20411004	Donapati Anuradha	MB BC FT
15	20411005	D.Pravalika	MB BC FT
16	20411006	Elchuri Prasanthi	MB BC FT
17	20411007	Manasa godavarthi	MB BC FT
18	20411008	G satwika	MB BC FT
19	20411009	JANJANAM TEJASRI	MB BC FT
20	20411010	KALISETTY VIJAYA PRABHAVATHI	MB BC FT
21	20411012	k.Prathyusha	MB BC FT
22	20411013	N. Sri Jayasri	MB BC FT
23	20411014	Nomula Soniya	MB BC FT
24	20411015	Sarihaddu Varalakshmi	MB BC FT
25	20411016	SARVEPALLI TEJASWINI	MB BC FT
26	20411017	SK.Afreen Tabassum	MB BC FT
27	20411019	Sk.Tahimeen	MB BC FT
28	20411021	Syed Tasneem Ferdoz	MB BC FT
29	20411022	VESHAPOGU NIRMALA JYOTHI	MB BC FT
30	20411024	Nuthakki Tejaswini	MB BC FT


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7CWV+CJG, Main Rd, opp. Womens College, Sambasiva Pet,
Guntur, Andhra Pradesh 522001, India
Lat 16.295445°
Long 80.443846°
28/02/23 04:00 PM GMT +05:30

Number of Students Completed the coure List

Registration Number	Name	Score	Credits
20407001	B.Pravallika	18	2
20407004	Gattigunde Rathnamanasa	13	2
20407007	MENDEM RAMYA	8	1
20407006	Chandravalli.Kollikonda	18	2
20407009	M.SUREKHA DEVI	14	2
20407010	Pilli.Raji	11	2
20407012	Shaik.Tasleem	18	2
20407013	Swarna latha. Talathoti	13	2
20407014	Vinjamuri Sirisha	14	2
20411001	Amarlapudi.Anusha	16	2
20411002	Ankalla.Rupa	13	2
20411003	D. Srujana	16	2
20411004	Donapati Anuradha	14	2
20411005	D.Pravalika	7	1
20411006	Elchuri Prasanthi	16	2
20411007	Manasa godavarthi	13	2
20411008	G satwika	14	2
20411009	JANJANAM TEJASRI	15	2
20411010	KALISETTY VIJAYA PRABHAVATHI	15	2
20411012	k.Prathyusha	13	2
20411013	N. Sri Jayasri	15	2
20411014	Nomula Soniya	13	2
20411015	Sarihaddu Varalakshmi	18	2
20411016	SARVEPALLI TEJASWINI	17	2
20411017	SK.Afreen Tabassum	14	2
20411019	Sk.Tahimeen	11	2
20411021	Syed Tasneem Ferdoz	17	2
20411022	VESHAPOGU NIRMALA JYOTHI	15	2
20411024	Nuthakki Tejaswini	14	2

Govt College for Women (Autonomous)
Guntur, Andhra Pradesh
DEPARTMENT OF BIOCHEMISTRY
Certificate Course

This is to certify that Ms. G. Ratna Manasa of III BSc Biochemistry Biotechnology Chemistry has successfully completed a certificate course in *Fundamentals of Bioinformatics* conducted by Department of Biochemistry from 28.02.2023 to 13.04.2023 and fulfilled all the prerequisites as per the UGC norms, for the award of credits.

Course Co-ordinator
Principal, RJD(FAC)

Govt College for Women (Autonomous)
Guntur, Andhra Pradesh
DEPARTMENT OF BIOCHEMISTRY
Certificate Course

This is to certify that Ms. N. Jayasri of III BSc Microbiology Biochemistry Food Technology has successfully completed a certificate course in *Fundamentals of Bioinformatics* conducted by Department of Biochemistry from 28.02.2023 to 13.04.2023 and fulfilled all the prerequisites as per the UGC norms, for the award of credits.

Course Co-ordinator
Principal, RJD(FAC)

Outcomes of the Course :

Students were now aware of scope of Bioinformatics, its application in designing vaccines, drugs and advance biomedical research and development preventive medicines, which are mainly focused on developing measures to prevent, control and cure dreadful infectious diseases. Students also gained awareness on specific databases concerned to sequence and align various data.