Certificate course

On

Basics of Bioinformatics

(2018-2019)

Conducted

by

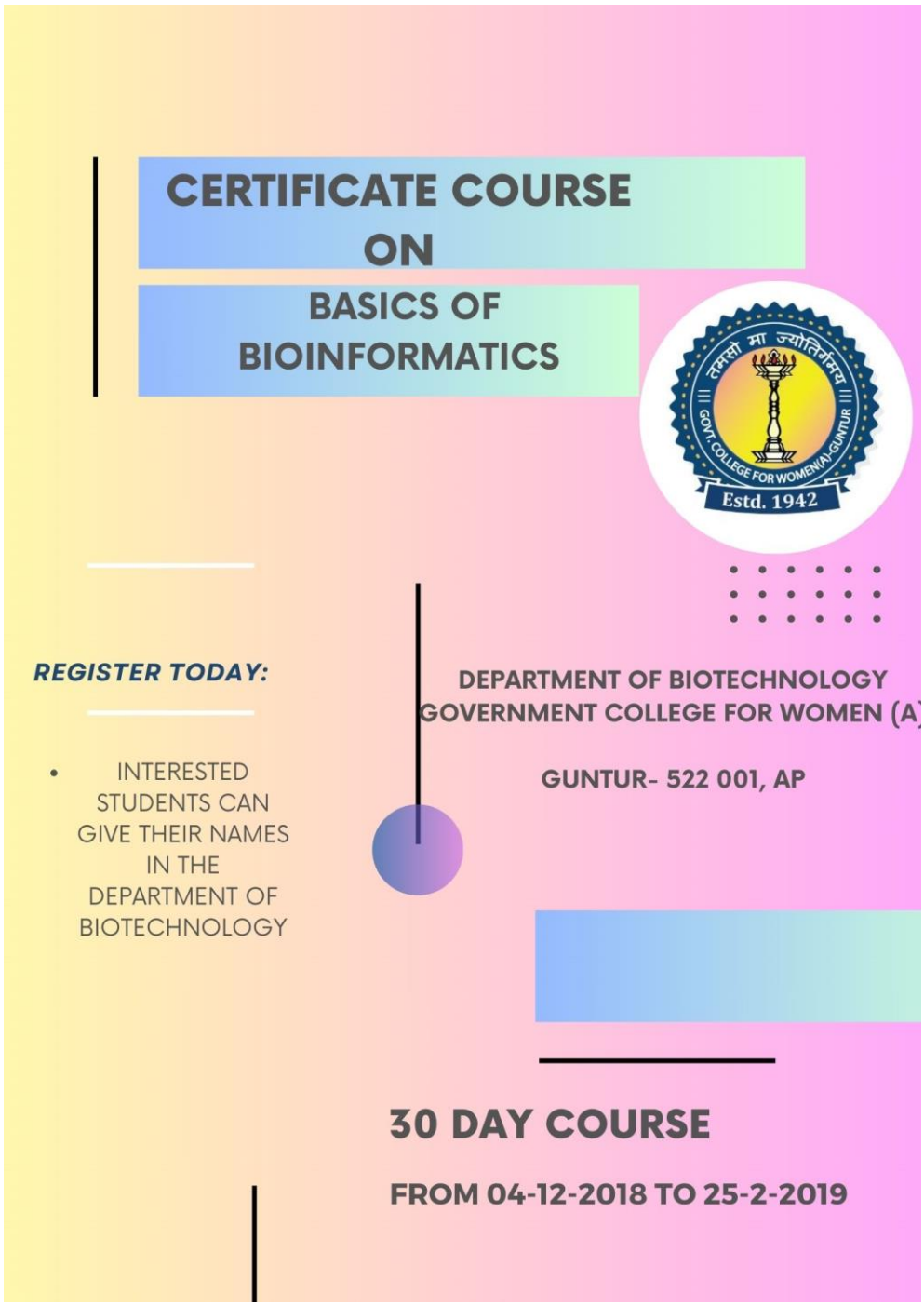
Department of Biotechnology

Government College for Women (A)

Guntur- 522 001, AP

Contents

Brouchure


CERTIFICATE COURSE
ON
BASICS OF
BIOINFORMATICS
तमसो मा ज्योतिर्गमय
GOVT. COLLEGE FOR WOMEN(A)-GUNTUR
Estd. 1942
REGISTER TODAY:
INTERESTED STUDENTS CAN GIVE THEIR NAMES IN THE DEPARTMENT OF BIOTECHNOLOGY
DEPARTMENT OF BIOTECHNOLOGY
GOVERNMENT COLLEGE FOR WOMEN (A)
GUNTUR- 522 001, AP
30 DAY COURSE
FROM 04-12-2018 TO 25-2-2019

To

20.03.2019

The Principal
Govt. College for women (A)
Guntur

Respected sir

Sub: Submitting the bills of expenditure incurred for conducting certificate course – Department of Biotechnology- 2018-19 Reg.

The Department of Biotechnology has successfully conducted the certificate course on "**Basics of Bioinformatics**" for the academic year 2018-19. A total of 10 students were enrolled and successfully completed the course.

In this regard I am here with submitting the bills of expenditure incurred for organizing the course.

S.NO	INVOICE NO. &DATE	ITEM	MAKE	AMOUNT (RS.)
1	GKLS/2018-19/371 21.02.2019	Enzyme kinetics teaching kit	Genei	4995.00
TOTAL				**4995.00**

In this regard, I Kindly request you to sanction the amount for the above bills.

Thanking You sir

Paid by me
S. Priyanka

PAID & CANCELLED
ADMN, OFFICER
20/3/19

Yours Sincerely

S. Priyanka
Dr.S.priyanka
Lecturer & In-Charge
Department Of Biotechnology

RECEIPT

Received an amount of **Rs. 4995.00 (Four thousand Nine hundred ninety five only)**, from The Principal, Govt. College for women, Guntur, towards expenditure incurred for the purchase of wet lab practical kit for conducting Certificate Course on **Basics of Bioinformatics** in the Department of Biotechnology, for the academic year 2018-19

S. Priyanka
Dr.S.Priyanka
Lecturer & In-Charge
Department Of Biotechnology

Date: 20.03.2019
Place: GCW, Guntur

Paid by me
S. Priyanka.

PAID & CANCELLED
ADMN, OFFICER
20/03/19

GOVT. DEGREE COLLEGE FOR WOMEN (AUTONOMOUS), GUNTUR
Department of Biotechnology
Certificate course- Basics of Bioinformatics CC108AFM
2018-19

Department of Biotechnology Organized Certificate course on "Basics of Bioinformatics" for 30 days. The Inauguration Session of Certificate Course was started on 4th December, 2018 by K.GEETHANJALI, HOD of Department of Biotechnology. This course is very useful to analyze structural and functional properties of biological molecules

Course Objectives:

- To enable the students to retrieve protein data from data bases
- To impart the knowledge of comparison of sequences and structure prediction
- To analyze the proteomics and interpret using UNIPROT and other secondary structure prediction tools.
- To give the basic structure of protein, levels of organization of protein help the student to search the sequence data form available data bases.
- To give them hands on training on three dimensional structure prediction and analysis of proteins using soft ware is a rapidly growing technology for designing drugs, creates lot of enthusiasm among the students to take up career in Bioinformatics.

Course Outcomes:

- The basic structure of protein, levels of organization of protein helped the student to retrieve the sequence data form available data bases.
- The three dimensional structure prediction and analysis of proteins using soft ware is a rapidly growing technology for designing drugs, creates lot of enthusiasm among the students to take up career in Bioinformatics
- Exploring the UNIPROT and other secondary structure prediction are important in understanding the differential protein expression in several disease conditions

References:

1. Introduction to Bioinformatics by Aurther M lesk
2. Developing Bioinformatics Computer Skills By: Cynthia Gibas, Per Jambeck
3. Tutorials at NCBI https://www.ncbi.nlm.nih.gov/
4. PDB 101 https://pdb101.rcsb.org/
5. Uniprot http://www.uniprot.org/

Syllabus/Course content

No. of Hours: 30

UNIT I

History of Bioinformatics. The notion of Homology. Sequence Information Sources, EMBL, GENBANK, Entrez, Unigene, Understanding the structure of each source and using it on the web.

(5 Periods)

UNIT II

Protein Information Sources, PDB, SWISSPROT, TREMBL, Understanding the structure of each source and using it on the web. Introduction of Data Generating Techniques and Bioinformatics problem posed by them- Restriction Digestion, Chromatograms, Blots, PCR, Microarrays, Mass Spectrometry.

(10 Periods)

UNIT III

Sequence and Phylogeny analysis, Detecting Open Reading Frames, Outline of sequence Assembly, Mutation/Substitution Matrices, Pairwise Alignments, Introduction to BLAST, using it on the web, Interpreting results, Multiple Sequence Alignment, Phylogenetic Analysis.

(5 Periods)

UNIT IV

Searching Databases: SRS, Entrez, Sequence Similarity Searches-BLAST, FASTA, Data Submission.

Genome Annotation: Pattern and repeat finding, Gene identification tools.

(5 Periods)

PRACTICALS

1. Sequence information resource
2. Understanding and using: PDB, Swissprot, TREMBL
3. Using various BLAST and interpretation of results.
4. Retrieval of information from nucleotide databases.
5.. Sequence alignment using BLAST.
6. Multiple sequence alignment using Clustal W.
7. Understanding and use of various web resources: EMBL, Genbank, Entrez, Unigene, Protein information resource (PIR)
8. ENZYME KINETICS WET LAB

SUGGESTED READING

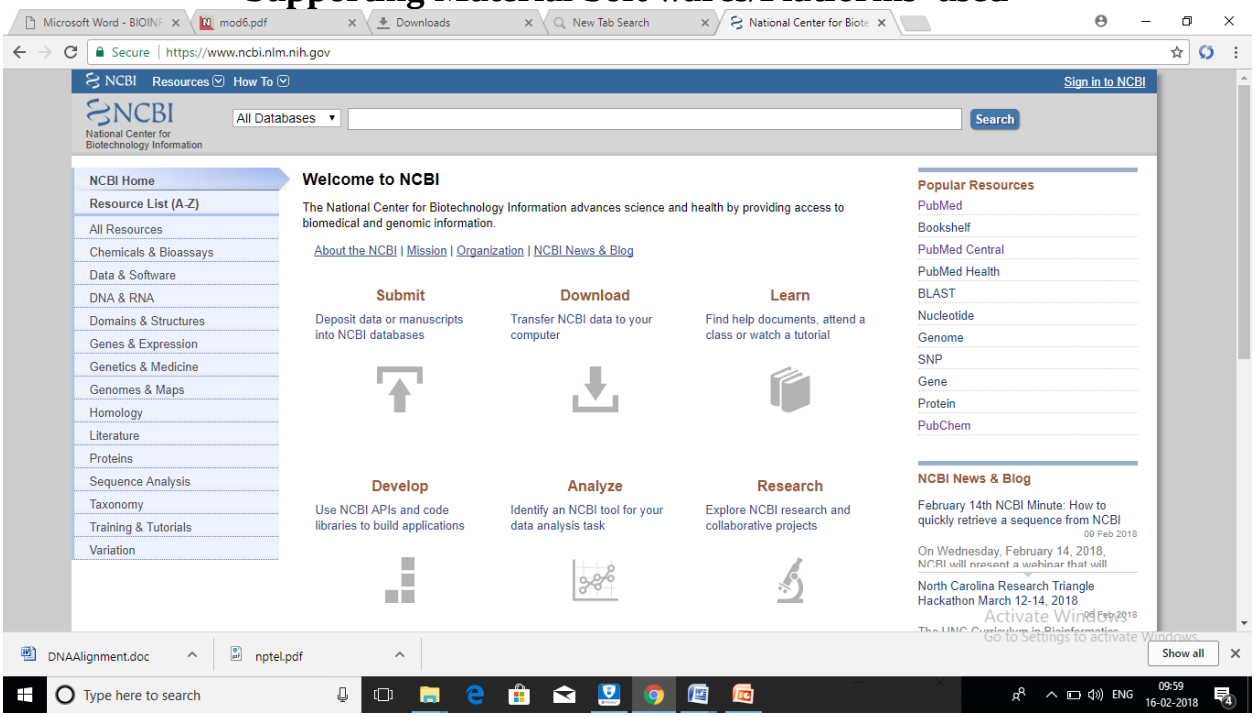
1. Ghosh Z. and Bibekanand M. (2008) Bioinformatics: Principles and Applications. Oxford

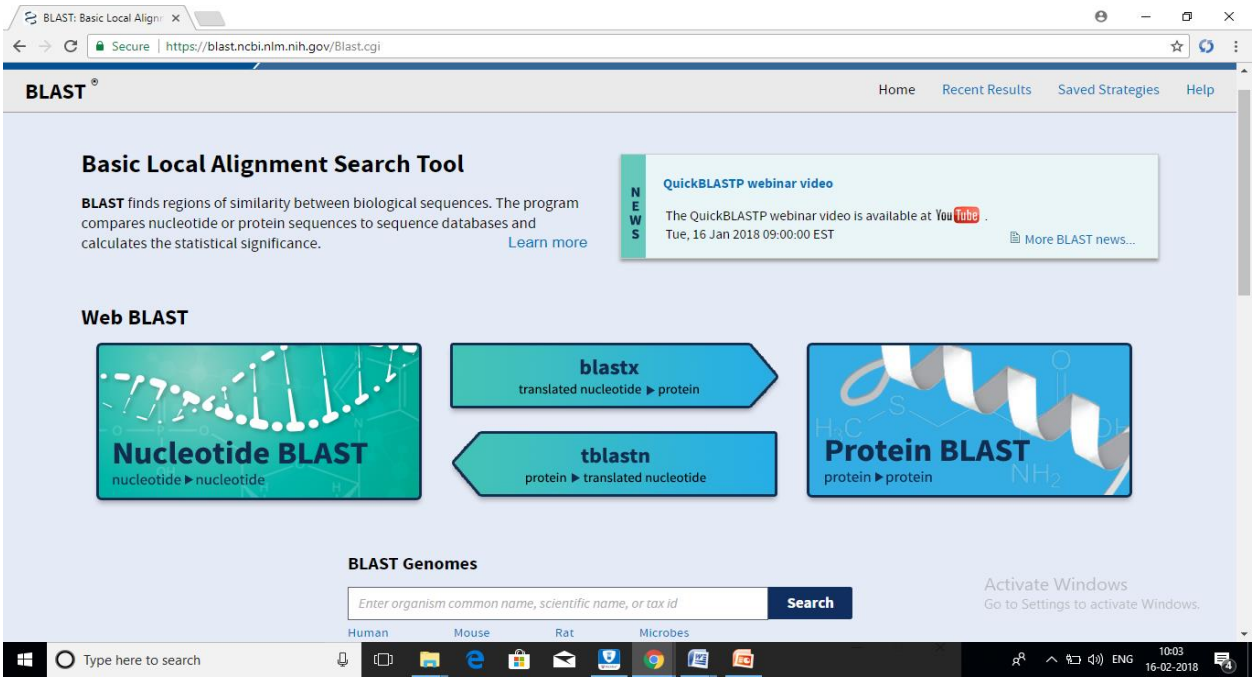
University Press.

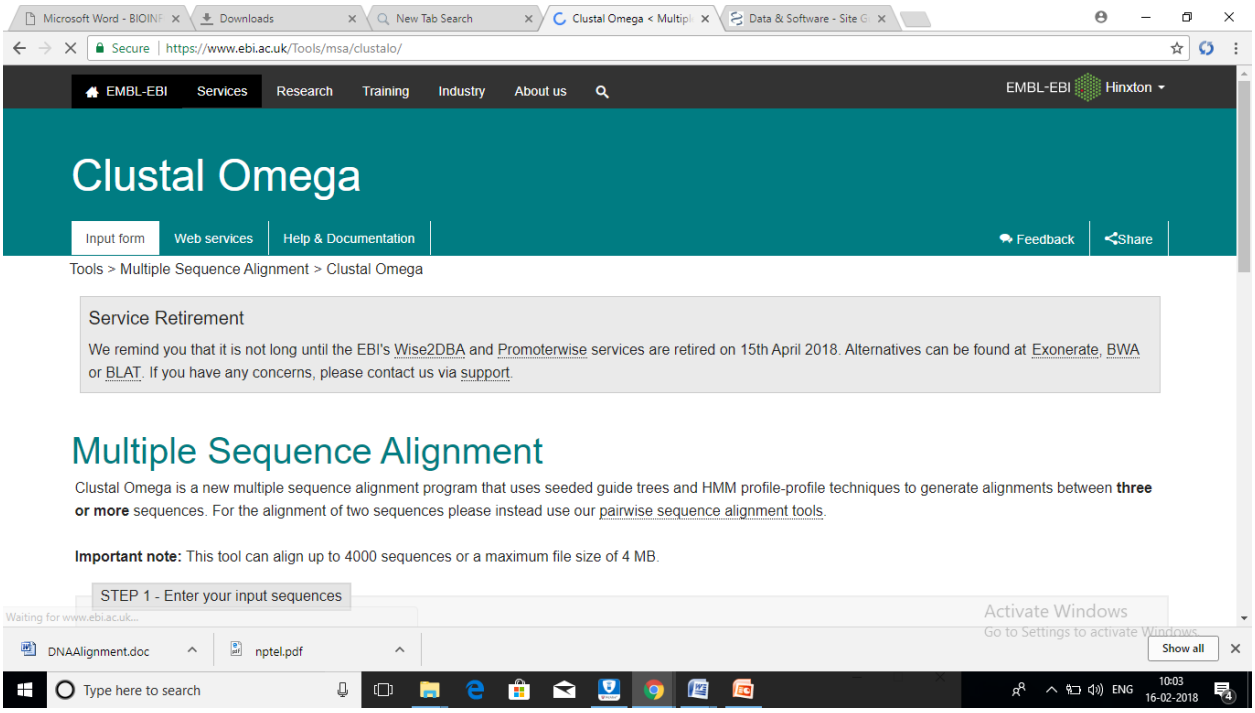
2. Pevsner J. (2009) Bioinformatics and Functional Genomics. II Edition. Wiley-Blackwell.

3. Campbell A. M., Heyer L. J. (2006) Discovering Genomics, Proteomics and Bioinformatics. II Edition. Benjamin Cummings.

Supporting Material Soft wares/Platforms used



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EMBL-EBI Services Research Training Industry About us
EMBL-EBI Hinxton
Clustal Omega
Input form Web services Help & Documentation
Feedback Share
Tools > Multiple Sequence Alignment > Clustal Omega
Service Retirement
We remind you that it is not long until the EBI's Wise2DBA and Promoterwise services are retired on 15th April 2018. Alternatives can be found at Exonerate, BWA or BLAT. If you have any concerns, please contact us via support.
Multiple Sequence Alignment
Clustal Omega is a new multiple sequence alignment program that uses seeded guide trees and HMM profile-profile techniques to generate alignments between three or more sequences. For the alignment of two sequences please instead use our pairwise sequence alignment tools.
Important note: This tool can align up to 4000 sequences or a maximum file size of 4 MB.
STEP 1 - Enter your input sequences
Activate Windows
Go to Settings to activate Windows.
DNAAlignment.doc
nptel.pdf
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Type here to search
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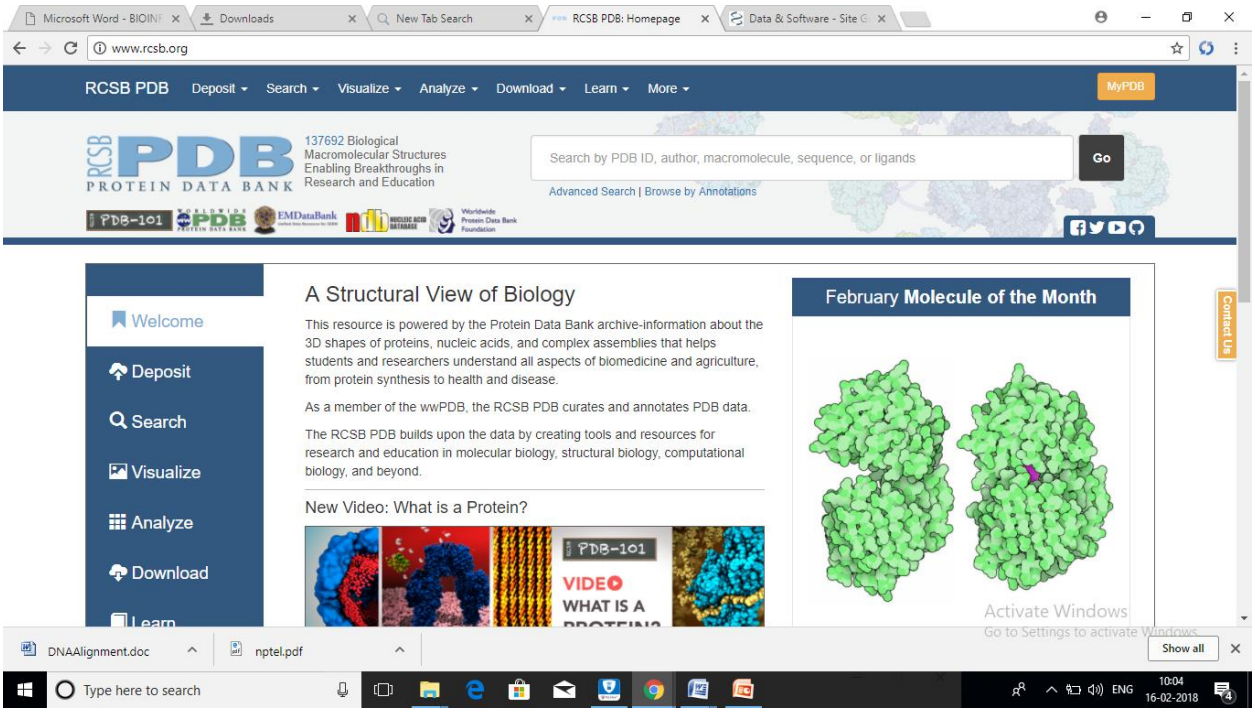
16-02-2018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RCSB PDB PROTEIN DATA BANK
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Advanced Search | Browse by Annotations
PDB-101
Welcome
Deposit
Search
Visualize
Analyze
Download
Learn
A Structural View of Biology
This resource is powered by the Protein Data Bank archive-information about the 3D shapes of proteins, nucleic acids, and complex assemblies that helps students and researchers understand all aspects of biomedicine and agriculture, from protein synthesis to health and disease.
As a member of the wwPDB, the RCSB PDB curates and annotates PDB data.
The RCSB PDB builds upon the data by creating tools and resources for research and education in molecular biology, structural biology, computational biology, and beyond.
New Video: What is a Protein?
PDB-101
VIDEO
WHAT IS A
February Molecule of the Month
Contact Us
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DNAAlignment.doc
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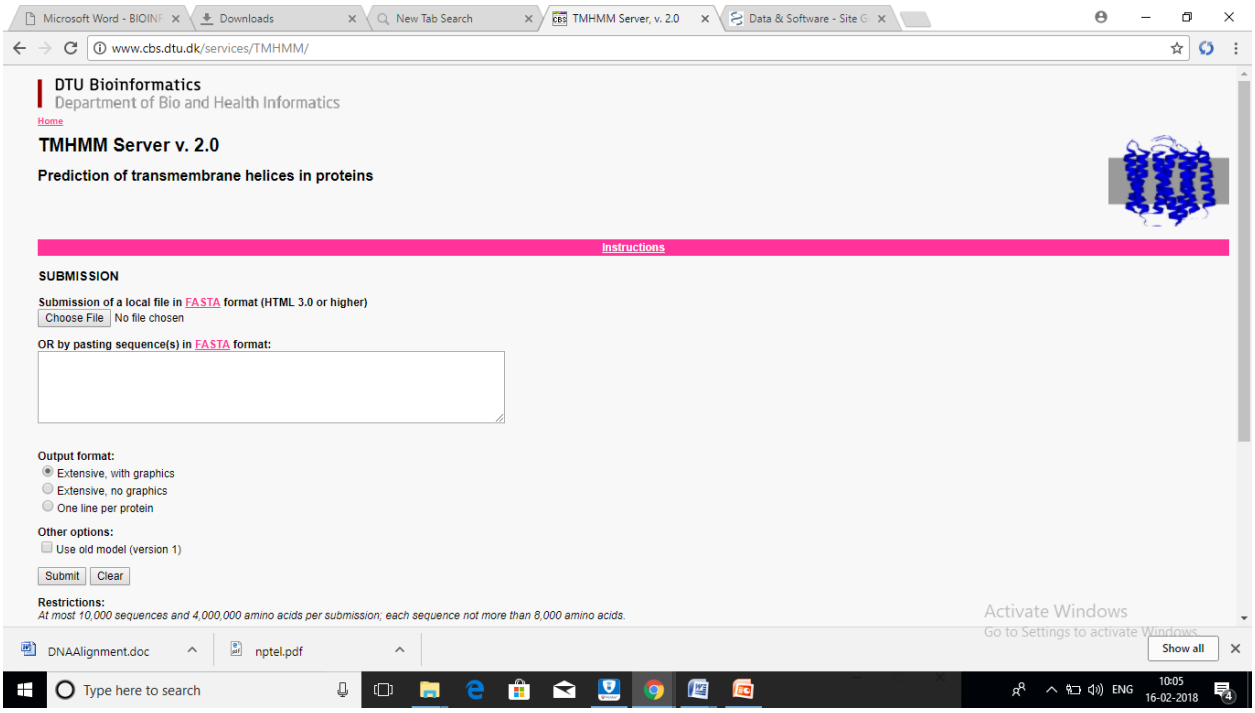
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Data & Software - Site G
www.cbs.dtu.dk/services/TMHMM/
DTU Bioinformatics
Department of Bio and Health Informatics
Home
TMHMM Server v. 2.0
Prediction of transmembrane helices in proteins
Instructions
SUBMISSION
Submission of a local file in FASTA format (HTML 3.0 or higher)
Choose File No file chosen
OR by pasting sequence(s) in FASTA format:
Output format:
Extensive, with graphics
Extensive, no graphics
One line per protein
Other options:
Use old model (version 1)
Submit Clear
Restrictions:
At most 10,000 sequences and 4,000,000 amino acids per submission; each sequence not more than 8,000 amino acids.
Activate Windows
Go to Settings to activate Windows.
DNAAlignment.doc
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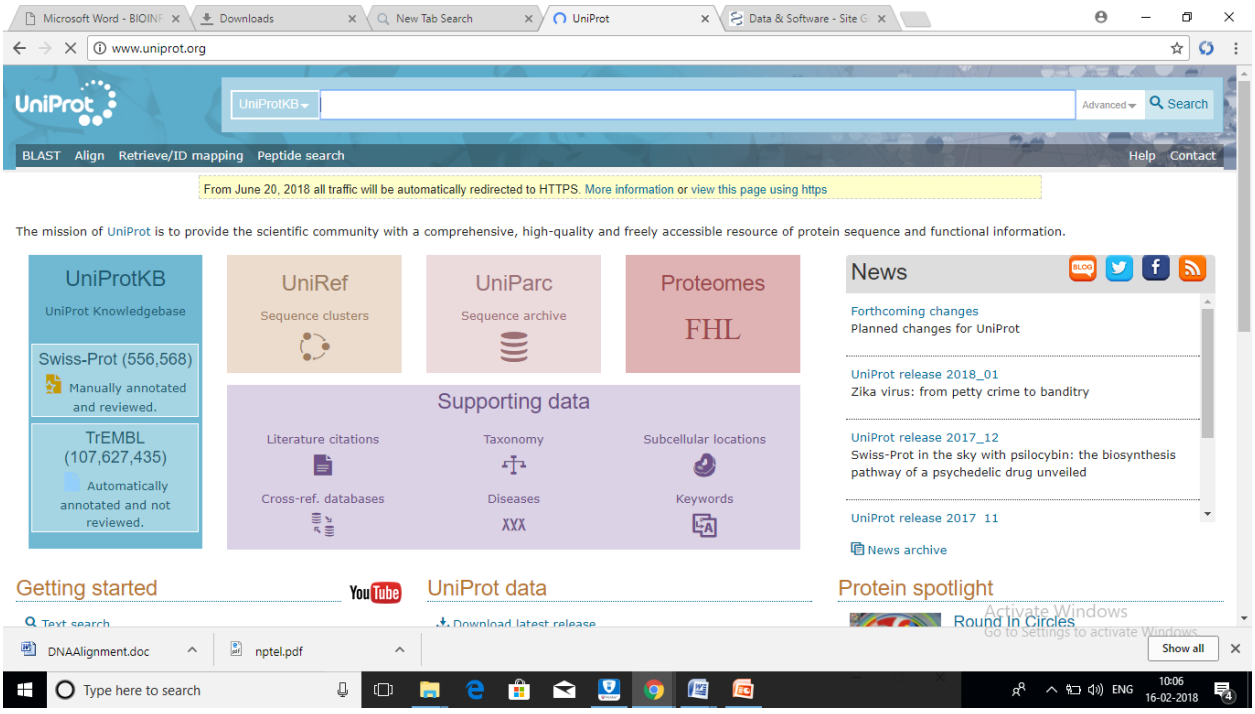
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Search
BLAST Align Retrieve/ID mapping Peptide search
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The mission of UniProt is to provide the scientific community with a comprehensive, high-quality and freely accessible resource of protein sequence and functional information.
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UniProt Knowledgebase
Swiss-Prot (556,568)
Manually annotated and reviewed.
TrEMBL (107,627,435)
Automatically annotated and not reviewed.
UniRef
Sequence clusters
UniParc
Sequence archive
Proteomes
FHL
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Literature citations
Taxonomy
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UniProt release 2017_12
Swiss-Prot in the sky with psilocybin: the biosynthesis pathway of a psychedelic drug unveiled
UniProt release 2017 11
News archive
Getting started
UniProt data
Protein spotlight
Round In Circles
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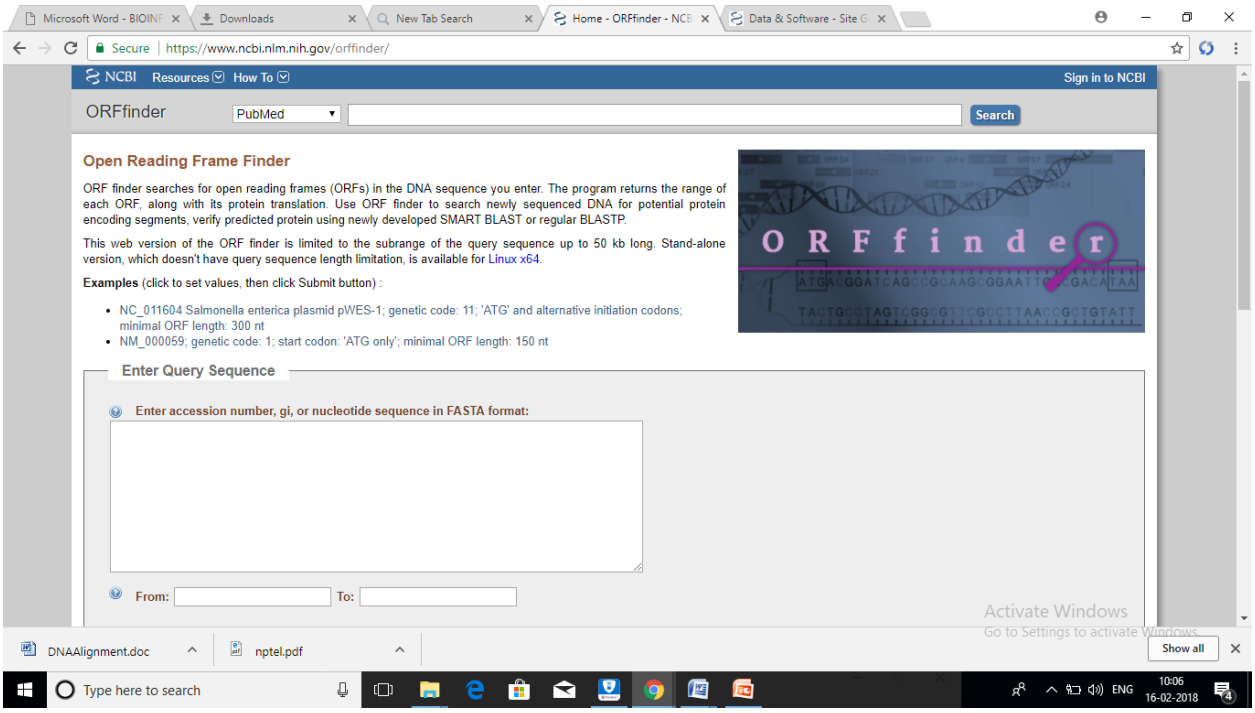
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Home - ORFfinder - NCB
Data & Software - Site G
Secure | https://www.ncbi.nlm.nih.gov/orffinder/
NCBI Resources How To
Sign in to NCBI
ORFfinder
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Search
Open Reading Frame Finder
ORF finder searches for open reading frames (ORFs) in the DNA sequence you enter. The program returns the range of each ORF, along with its protein translation. Use ORF finder to search newly sequenced DNA for potential protein encoding segments, verify predicted protein using newly developed SMART BLAST or regular BLASTP.
This web version of the ORF finder is limited to the subrange of the query sequence up to 50 kb long. Stand-alone version, which doesn't have query sequence length limitation, is available for Linux x64.
Examples (click to set values, then click Submit button) :
NC_011604 Salmonella enterica plasmid pWES-1; genetic code: 11; 'ATG' and alternative initiation codons; minimal ORF length: 300 nt
NM_000059; genetic code: 1; start codon: 'ATG only'; minimal ORF length: 150 nt
ORFfinder
Enter Query Sequence
Enter accession number, gi, or nucleotide sequence in FASTA format:
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To:
Activate Windows
Go to Settings to activate Windows.
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nptel.pdf
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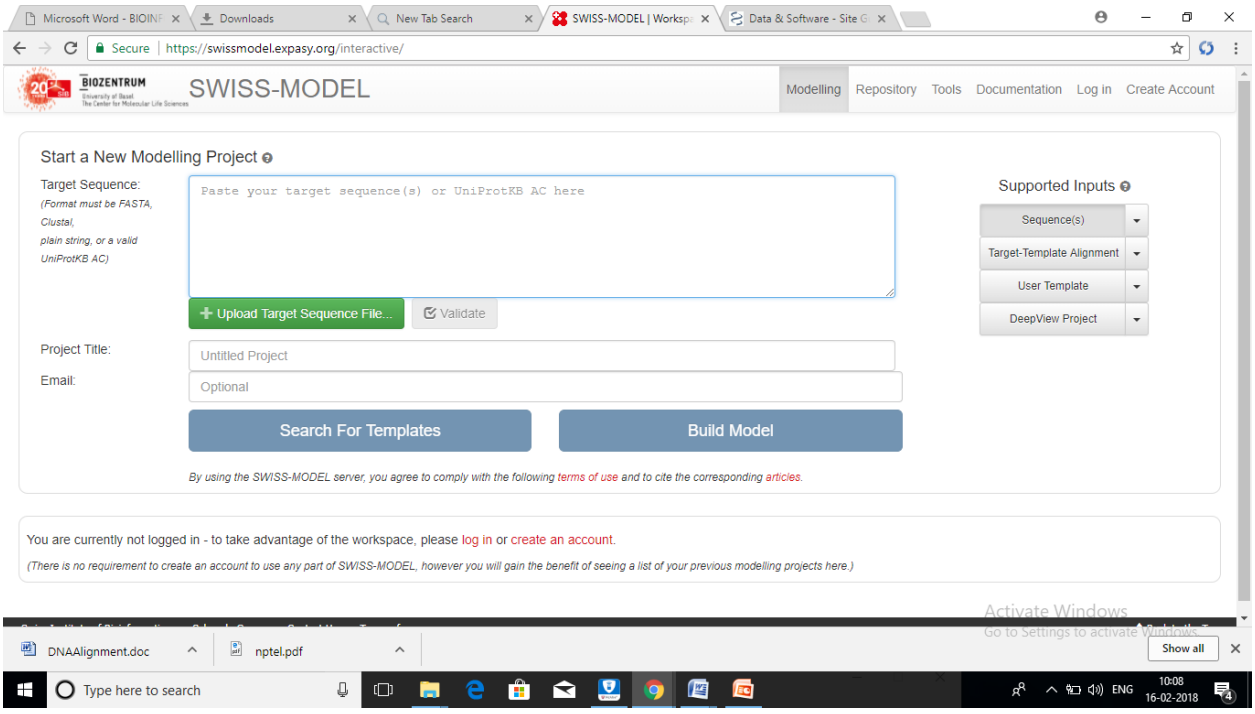
16-02-2018


Microsoft Word - BIOINF
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Secure | https://swissmodel.expasy.org/interactive/
BIOZENTRUM
SWISS-MODEL
Modelling
Repository
Tools
Documentation
Log in
Create Account
Start a New Modelling Project
Target Sequence:
(Format must be FASTA, Clustal, plain string, or a valid UniProtKB AC)
Paste your target sequence(s) or UniProtKB AC here
Upload Target Sequence File...
Validate
Supported Inputs
Sequence(s)
Target-Template Alignment
User Template
DeepView Project
Project Title:
Untitled Project
Email:
Optional
Search For Templates
Build Model
By using the SWISS-MODEL server, you agree to comply with the following terms of use and to cite the corresponding articles.
You are currently not logged in - to take advantage of the workspace, please log in or create an account.
(There is no requirement to create an account to use any part of SWISS-MODEL, however you will gain the benefit of seeing a list of your previous modelling projects here.)
Activate Windows
Go to Settings to activate Windows.
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16-02-2018

GOVT. DEGREE COLLEGE FOR WOMEN (AUTONOMOUS), GUNTUR
Department of Biotechnology

2018-19

Name of the Certificate course Conducted: Basics of Bioinformatics

Name of the Course coordinator : Dr.S.Priyanka

No. of Students enrolled : 10

Date of commencement of classes : 04/12/2018

Date of ending of the course : 25/02/2019

No. of classes conducted : 31

No. of students appeared for final exam : 10

No. of students passed final exam : 10

Over all participation of the students : Satisfactory

GOVT. DEGREE COLLEGE FOR WOMEN (AUTONOMOUS), GUNTUR
Department of Biotechnology

Certificate course- Basics of Bioinformatics
2018-19
List of students Enrolled:

III B.SC BT.B.C

.S.No	Regd.No	Name Of The Student	No. of classes attended
1.	16406002	M. Asha jyothi	29
2.	16406005	G. Neeraja	27
3.	16406007	SK.Nannibhi	27

III B.SC BC.BT.C

S.No	Regd.No	Name Of The Student	No. of classes
1.	16407001	T.Lakshmi Sirisha	27
2.	16407003	T.Naga lakshmi	24
3.	16407004	D.Ashritha	28
4.	16407008	CH.Anitha kumari	29
6.	16407009	J .Lavanya	25
7.	16407013	B.. Poojitha	21
8.	16407014	SD.Firdoos	22

4. COURSE SYNOPSIS

Basics of Bioinformatics

Introduction

Methods

Applications

Bioinformatics

Introduction

Methods

Applications

Role of Bioinformatics biological sequence analysis

4. STUDENTS EVALUATION

Students were evaluated by Online Practical exam

- 10 Marks for each step
- Students were given Accession no. of various proteins
- Students were asked to paste the results in word document sequentially

List of Questions

1. Determination of enzyme and substrate relationship
2. Identification and characterizing given accession numbers proteins using UNIPROT
3. Secondary structural Analysis of given accession numbers using SOPMA, PROTPARAM
4. .Searching for PDB site for given accession numbers
5. Generating protein model using online modeling tool-SWISS-MODEL given accession numbers

COURSE PHOTOGRAPHS


of Hepatitis:-
Through Unsafe Sex
Through Blood

GOVERNMENT COLLEGE FOR WOMEN, GUNTUR

(An Autonomous Institution with CPE status)

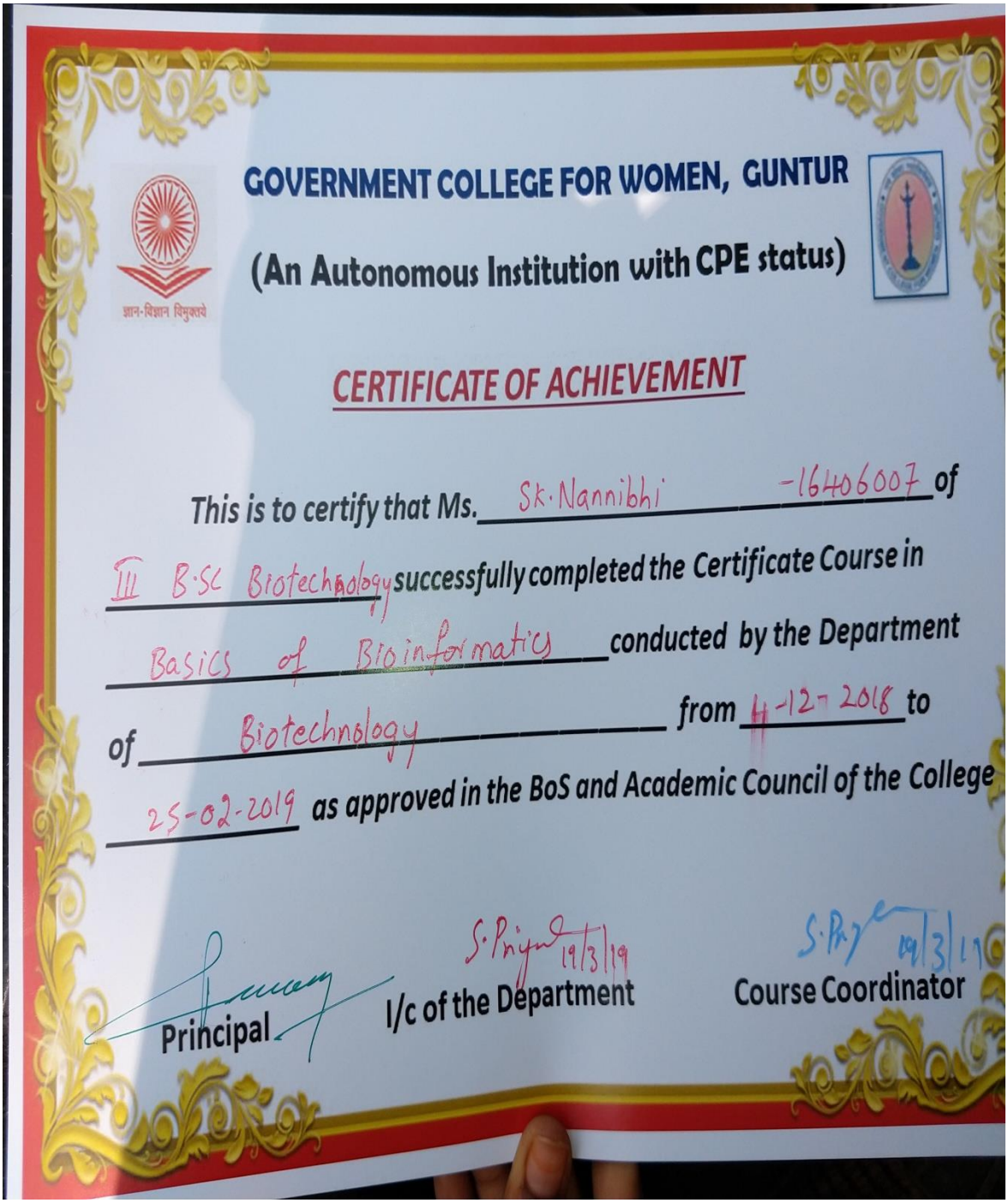
CERTIFICATE OF ACHIEVEMENT

This is to certify that Ms. Ch. Anitha Kumari - 16407008 of III B.Sc Biotechnology successfully completed the Certificate Course in Basics of Bioinformatics conducted by the Department of Bio-technology from 04-12-2018 to 25-02-2019 as approved in the BoS and Academic Council of the College

Principal

S. Priya 12/3/19
I/c of the Department

S. Priya 12/3/19
Course Coordinator



GOVERNMENT COLLEGE FOR WOMEN, GUNTUR

(An Autonomous Institution with CPE status)

ज्ञान-विज्ञान विमुक्तये

CERTIFICATE OF ACHIEVEMENT

This is to certify that Ms. Sk. Nannibhi -16406007 of

III B.Sc Biotechnology successfully completed the Certificate Course in

Basics of Bioinformatics conducted by the Department

of Biotechnology from 4-12-2018 to

25-02-2019 as approved in the BoS and Academic Council of the College

Principal

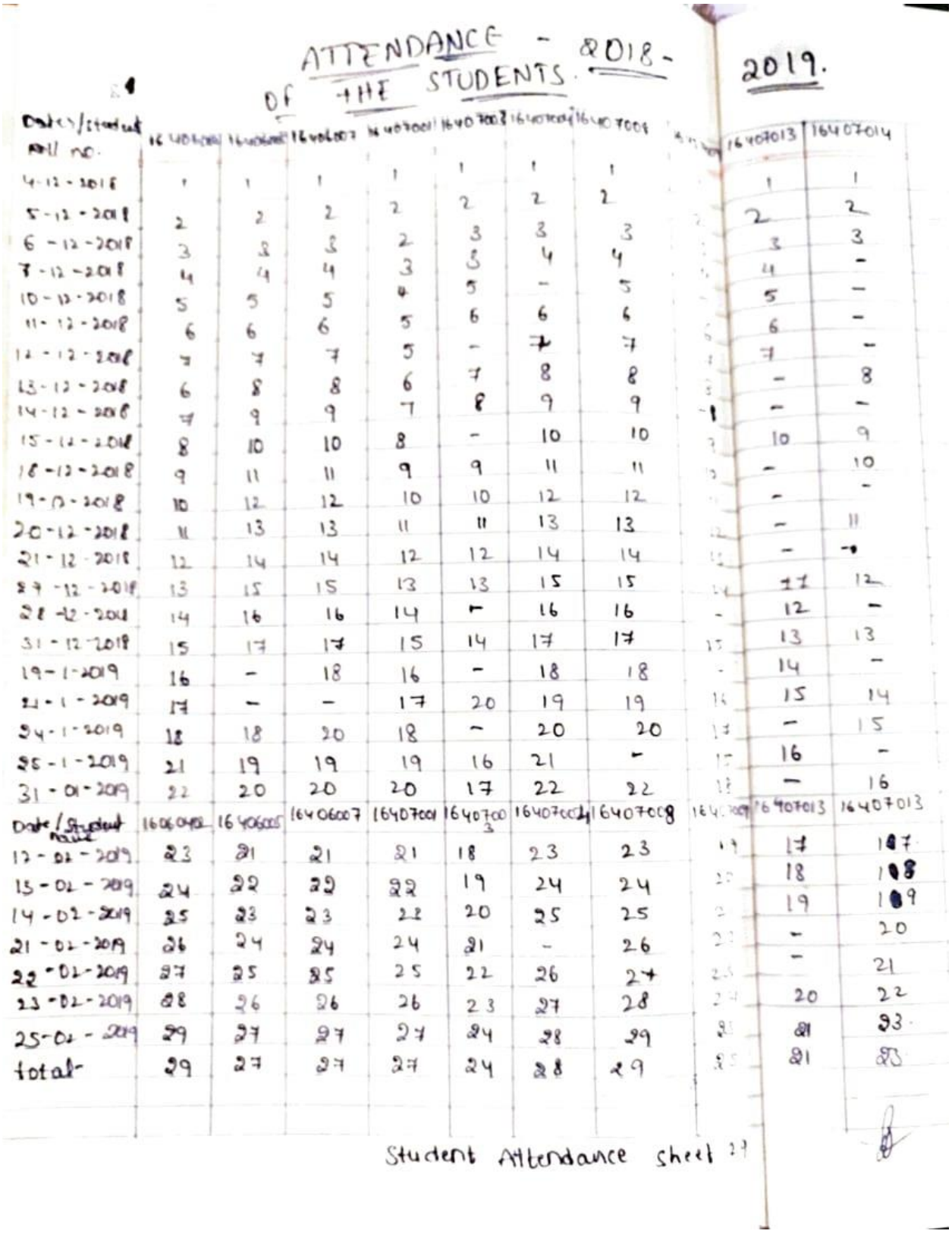
S. Priya 19/3/19

I/c of the Department

S. Raj 19/3/19

Course Coordinator

STUDENT ATTENDANCE SHEET



ATTENDANCE - 2018 - 2019.

OF THE STUDENTS.

Date / Student roll no.	1640	1640	16406007	1640	1640	1640	1640	1640	1640
4-12-2018	1	1	1	1	1	1	1	1	1
5-12-2018	2	2	2	2	2	2	2	2	2
6-12-2018	3	3	3	2	3	3	3	3	3
7-12-2018	4	4	4	3	5	4	4	4	-
10-12-2018	5	5	5	4	5	-	5	5	-
11-12-2018	6	6	6	5	6	6	6	6	-
12-12-2018	7	7	7	5	-	7	7	7	-
13-12-2018	6	8	8	6	7	8	8	-	8
14-12-2018	7	9	9	7	8	9	9	-	-
15-12-2018	8	10	10	8	-	10	10	10	9
18-12-2018	9	11	11	9	9	11	11	-	10
19-12-2018	10	12	12	10	10	12	12	-	-
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27-12-2018	13	15	15	13	13	15	15	11	12
28-12-2018	14	16	16	14	-	16	16	12	-
31-12-2018	15	17	17	15	14	17	17	13	13
19-1-2019	16	-	18	16	-	18	18	14	-
24-1-2019	17	-	-	17	20	19	19	15	14
24-1-2019	18	18	20	18	-	20	20	-	15
25-1-2019	21	19	19	19	16	21	-	16	-
31-01-2019	22	20	20	20	17	22	22	-	16
Date / Student roll no.	1606	1640	16406007	1640	1640	1640	1640	1640	1640
12-02-2019	23	21	21	21	18	23	23	17	17
15-02-2019	24	22	22	22	19	24	24	18	18
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23-02-2019	28	26	26	26	23	27	28	20	22
25-02-2019	29	27	27	27	24	28	29	21	23
total-	29	27	27	27	24	28	29	21	23

Student Attendance sheet

Model certificate

GOVERNMENT COLLEGE FOR WOMEN, GUNTUR

(An Autonomous Institution with CPE status)

CERTIFICATE OF ACHIEVEMENT

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Principal

S. Priya 19/3/19
I/c of the Department

S. Priya 19/3/19
Course Coordinator

GOVT. DEGREE COLLEGE FOR WOMEN (AUTONOMOUS), GUNTUR
Department of Biotechnology

Certificate course- Basics of Bioinformatics
2018-19
Students Evaluation- Award List

.S.No	Regd.No	Name Of The Student	Max marks(50M)
4.	16406002	M. Asha jyothi	45
5.	16406005	G. Neeraja	50
6.	16406007	SK.Nannibhi	40

III B.SC BC.BT.C

S.No	Regd.No	Name Of The Student	Max marks(50M)
5.	16407001	T.Lakshmi Sirisha	43
6.	16407002	N.lakshmi Prasanna	44
7.	16407003	T.Naga lakshmi	35
8.	16407004	D.Ashritha	44
9.	16407008	CH.Anitha kumari	42
6.	16407009	J .Lavanya	41
7.	16407013	B.. Poojitha	42
8.	16407014	SD.Firdoos	40

GCW (A) Guntur

BASICS OF BIOINFORMATICS

Experiment No. : CERTIFICATE COURSE ORGANISED BY DEPT OF BIOTECHNOLOGY

Date :

Experiment Name : FEED BACK

Page No. :

The Conducted Certificate Course of Basics of Bio-Informatics is useful to gain knowledge

In Understanding the life Biology the Molecular level. It has wide range of applications like disease gene discovery, metabolic engineering, drug design etc...

Bio informatics allow students in the use of computers in biological research to better grasp this dynamic and rapidly growing field.

I like the course that which is useful in the our future.

I am glad to be a student of this certificate course.

The learning of the New methods that are useful and to gain the knowledge about Bio informatics

Signature

M. Asha Jyothi

III BSc Bt. B.C

16406002

Basics of BIOINFORMATICS certificate course conducted by GCWCA), GUNTUR Dept of Biotechnology.

Experiment No. :

Date :

Experiment Name : Feed Back

Page No. :

THE CONDUCTED CERTIFICATE COURSE BY THE DEPARTMENT OF BIOTECHNOLOGY ABOUT "BASICS OF BIOINFORMATICS" it very useful for me.

bio informatics has wide range of Applications like Disease gene discovery, molecular diagnostics, drug design, metabolic engineering etc....

It is hoped that the students would become Capable of using computational analysis to solve important problems arising from the new frontiers of biology and medicine at molecular level.

I like this course Because it is useful to everyone. I am proud to be a student of this certificate course.

I have learned the New methods that are used and the usage of Bioinformatics.

Signature

G. Neeraja
16406005
III BSC Bt·B·C

KCW(A) Guntur

FEED BACK

ON

BASICS OF BIOINFORMATICS

Experiment No. :

Date :

Experiment Name : Certificate Course Conducted by Dept of BIOTECHNOLOGY

Page No. :

the conducted certificate course of basics of Bio informatics is useful to gain knowledge

The Bioinformatics allow students in the use of computers in biological researchs to better grasp this growing field.

The Field of Biological informatics is too extensive experience in their fields. Bioinformatics contains a wide range of molecular level. I like this course that which is useful in the Our I am glad to be a Student of this certificate course.

Signature

B. poojitha

164070013

II BSC. Bt. Bc. C

STATEMENT OF EXPENDITURE

Sno	Department	Name Of The Certificate Course	Item	Supplier	Date	Bill Number	Amount In RS
1	Bio Technology	Basics Of Bio Informatics	GeNei Enzyme Kinetics	GK Life Sciences	21-2-2019	GKLS/2018-19/371	4995.00

TAX INVOICE — ORIGINAL

GK LIFE SCIENCES

GSTIN: 37 CVMPK8841A 1ZE

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The Principal Govt. College for Women's Guntur-522001, Andhra Pradesh.	The Principal Govt. College for Women's Guntur-522001, Andhra Pradesh. Dept. of Biotehnology	GKLS/2018-19/371 INVOICE DATE : 21.02.2019

Proc./P.O No : Dated :

S.No.	HSN Code	Prod. Code	Product Description	Pack UOM	Rate (INR)	Qty	Amount (INR)	Disc (%)	Taxable amt (INR)	SGST %	SGST Amt	CGST %	CGST Amt	Total Amount (INR)
1	3822	KT89	GeNei™ Enzyme Kinetics Teaching Kit	5expts	4460.00	1	4460.00	0	4460.00	6	267.60	6	267.60	4995.20
							4460.00		4460.00		267.60		267.60	4995.20

BANK DETAILS (CURRENT Account):

Account Name:	GK LIFE SCIENCES.	Branch Name:	Laxmipuram Main Road, Guntur.
Account No :	630705500741.		
IFS Code(ICICI):	ICIC0006307.		

Net. Amount (INR) : 4,995.00

Net. Amount (In Words) :-

Four Thousand Nine Hundred Ninety Five Only

1 Certified that the particulars are given above are true &Correct.

2 Articles are strictly for LABORATORY USE ONLY.

3 All Disputes are subject to GUNTUR JURISDICTION.

4 This Is Computer Generated Tax Invoice.

paid by me S. Priyanka

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Proprietor

E &O.E

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ADMN. OFFICER

S. Priyanka

TAX INVOICE

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GK LIFE SCIENCES

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GSTIN: 37 CVMPK8841A 1ZE

Regd. Address: 7-14-26, 8th Lane, Vallurivari Thota, Donka Road-522001, Guntur, A.P, INDIA.

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Proprietor

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S.Priyank

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S.Priyank

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GK LIFE SCIENCES

GSTIN: 37 CVMPK8841A 1ZE

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Net. Amount (INR) : 4,995.00

Net. Amount (In Words) :-

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ADVANCE STAMPED RECEIPT

To	Invoice No	Invoice Date	Invoice Amount
The Principal Govt. College for Women's Sambashivapet, Guntur Andhra Pradesh.	GKLS/2018-19/371	21.02.2019	4995.00

Amount(In words): Four Thousand Nine Hundred Ninety Five Onl y

20/3/19

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me
S Priyanka

S. Priyanka

For GK LIFE SCIENCES

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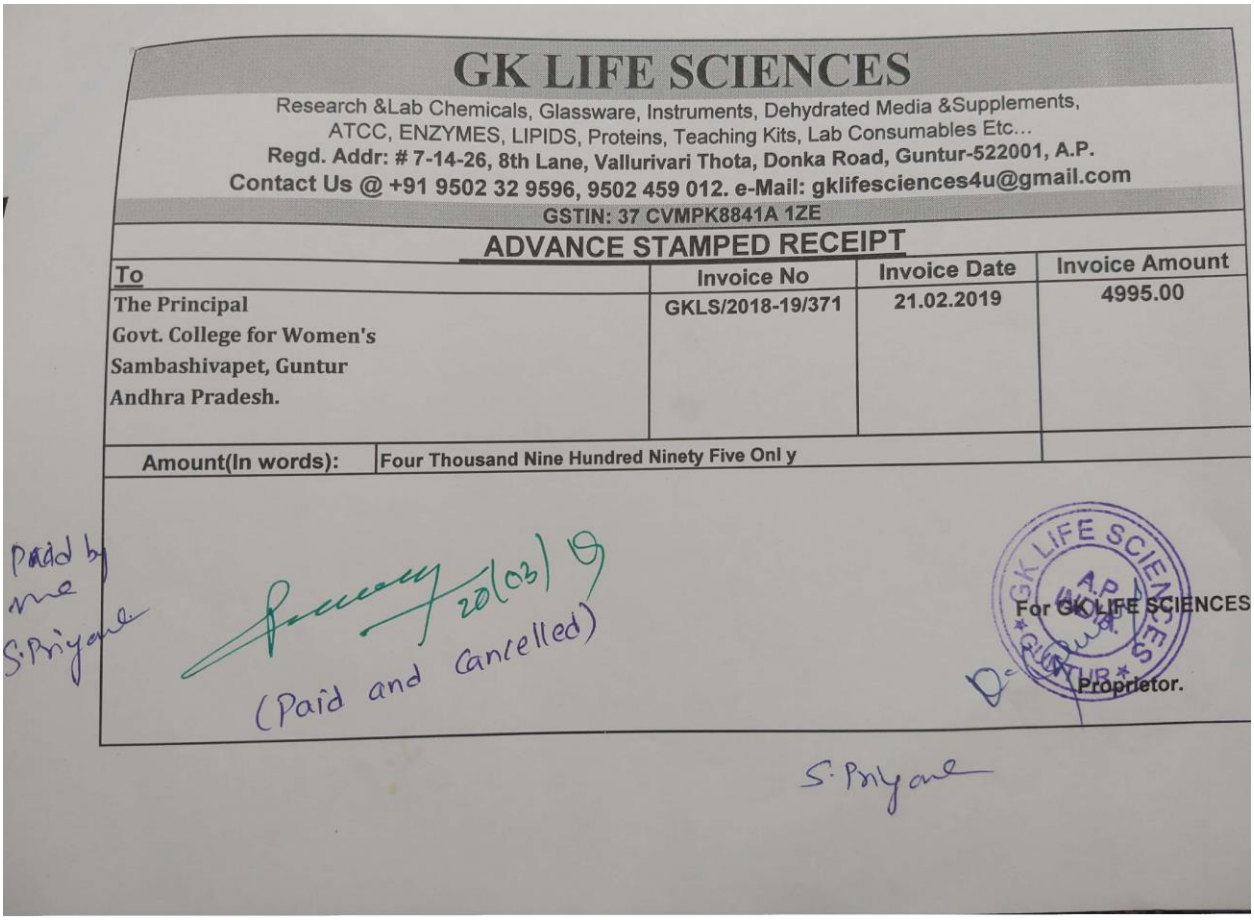

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The Principal Govt. College for Women's Sambashivapet, Guntur Andhra Pradesh.	GKLS/2018-19/371	21.02.2019	4995.00

Amount(In words): Four Thousand Nine Hundred Ninety Five Only

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S. Priyanka

20/03/19
(Paid and Cancelled)

GK LIFE SCIENCES A.P. Guntur

For GK LIFE SCIENCES

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