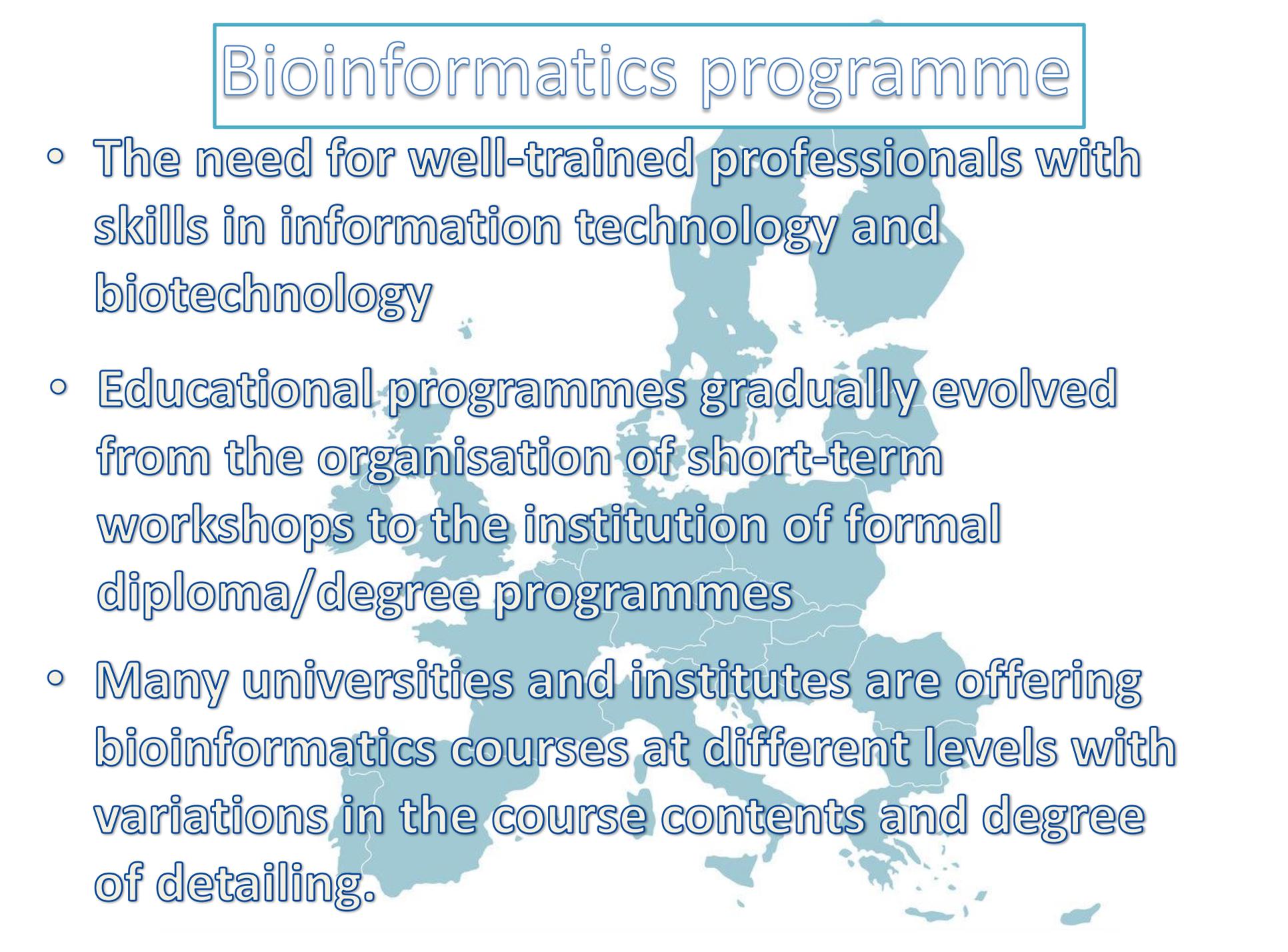


A review of bioinformatics
education in the EU countries

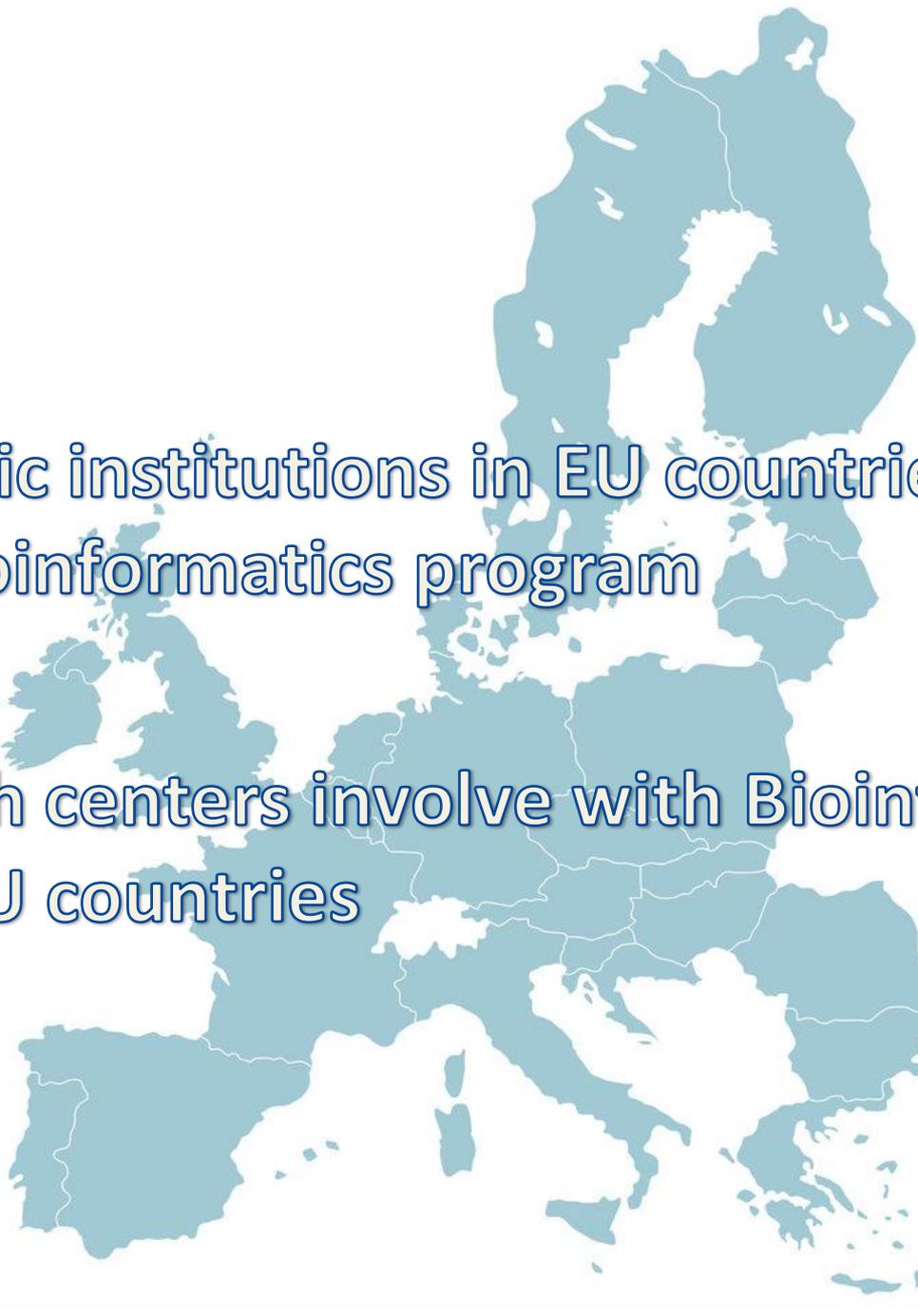
Ai Fern Lim

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Bioinformatics programme



- The need for well-trained professionals with skills in information technology and biotechnology
- Educational programmes gradually evolved from the organisation of short-term workshops to the institution of formal diploma/degree programmes
- Many universities and institutes are offering bioinformatics courses at different levels with variations in the course contents and degree of detailing.

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- Academic institutions in EU countries that offer Bioinformatics program
 - Research centers involve with Bioinformatics in the EU countries

Academic institutions in EU countries

Name of Qualification	Medical and Bioinformatics	Bioinformatics (Master)	Bachelor's Degree Program in Bioinformatics	Master of Bioinformatics (Leuven)	Master of Science in Bioinformatics (Bioscience Engineering)	Master of Science in Bioinformatics (Engineering)
Name of Institution	UNIVERSITY OF APPLIED SCIENCES UPPER AUSTRIA	University of Vienna	Johannes Kepler University Linz	Katholieke Universiteit Leuven	Ghent University	Ghent University
Country	Austria	Austria	Austria	Belgium	Belgium	Belgium
Type	Bachelors Degree	Masters Degree	Bachelors Degree	Masters Degree	Masters Degree	Masters Degree
No. of Credits	180ECTS	120 ECTS	180ECTS	120 ECTS	120 ECTS	120 ECTS
Duration of Study (SEMESTERS)	6	4	6	5	4	4

Academic institutions in EU countries

Name of Qualification	Bio-informatics and modelling	BIOINFORMATICS	The Master's programme in Bio-Medical Informatics	Bioinformatics	MSc. Bioinformatics	Ph.D. Bioinformatics
Name of Institution	UNIVERSITY OF LIÈGE	University Of Plodiv	Sofia University "St. Kliment Ohridski"	Charles University in Prague	Czech Technical University in Prague	Czech Technical University in Prague
Country	Belgium	Bulgaria	Bulgaria	Prague, Czech Republic	Prague, Czech Republic	Prague, Czech Republic
Type	Masters Degree	Bachelors Degree	Master of Science	Bachelors Degree	master post bachelor	Ph.D.
No. of Credits	120 ECTS	not mentioned	not mentioned	not mentioned	not mentioned	not mentioned
Duration of Study (SEMESTERS)	2 years/blocks	8	3	3 years	2 years	4 years

Academic institutions in EU countries

Name of Qualification	MSc in Bioinformatics	Bioinformatics and Systems Biology	BIOINFORMATICS Master's Degree Programme	BIOINFORMATICS / COMPUTATIONAL BIOLOGY	Master in Bioinformatics	Master's in Bioinformatics and Modelling (BIMM)
Name of Institution	University of Copenhagen	Technical University of Denmark	AARHUS UNIVERSITY	Université Paris-Saclay	University of Bordeaux, France	Sorbonne University's Faculty of Science & Engineering
Country	Denmark	Denmark	Denmark	France	France	France
Type	Master's programme	Master's programme	Master's programme	Master's programme	Master's programme	Master's programme
No. of Credits	120 ECTS	120 ECTS	120 ECTS	not mentioned	not mentioned	not mentioned
Duration of Study (SEMESTERS)	2 Years	2 Years	4	2 Years	2 Years	2 years

Academic institutions in EU countries

Name of Qualification	Bioinformatics (M.Sc.)	Master in Bioinformatics	Master of Science in Bioinformatics	Bioinformatics, B.SC.	Bioinformatics	bioinformatics and systems biology
Name of Institution	Saarland University	University of Montreal	Freie Universität Berlin	Technische Hochschule Deggendorf	Technische Hochschule Mittelhessen	Technische Hochschule Mittelhessen in Kooperation mit Justus-Liebig-Universität Gießen
Country	France	France	Germany	Germany	Germany	Germany
Type	Master's programme	Master of Science (M.Sc.)	Master of Science	Bachelor's degree	Bachelor's degree	Master of Science (MSc)
No. of Credits	not mentioned	45 credits	not mentioned	90 ECTS	not mentioned	120 credit points
Duration of Study (SEMESTERS)	4	At least two consecutive semesters must be completed full-time, either at the Université de Montréal or in a research laboratory of a hospital or an affiliated institute approved by the appropriate authorities.	4	7	6	4

Academic institutions in EU countries

Name of Qualification	Bioinformatics and Systems Biology	Bioinformatics (Bachelor)	Bioinformatics - Master	Bioinformatics	Bioinformatics Bachelor of Science	Bioinformatics (Master of Science)
Name of Institution	Justus Liebig University	Eberhard Karls University of Tübingen	University of Tübingen	Martin-Luther University Halle-Wittenberg	Goethe-Universität Frankfurt a.M.	Goethe-Universität Frankfurt a.M.
Country	Germany	Germany	Germany	Germany	Germany	Germany
Type	Master of Science (MSc)	Bachelor's degree	Master	BACHELOR'S DEGREE PROGRAMME	Bachelor's degree	Master
No. of Credits	120 credit points	not mentioned	not mentioned	180 CP	not mentioned	not mentioned
Duration of Study (SEMESTERS)	4	3 years	4	6	6	4

Academic institutions in EU countries

Name of Qualification	Bioinformatics	bioinformatics	bioinformatics MASTER'S DEGREE	Bioinformatics master	Bioinformatics (Bachelor / Major)	Bioinformatics (Master)
Name of Institution	Friedrich-Schiller-Universität Jena	Friedrich-Schiller-Universität Jena	Martin-Luther-University Halle-Wittenberg	Universität Potsdam	Ludwig-Maximilians-Universität München & Technische Universität München	Ludwig-Maximilians-Universität München & Technische Universität München
Country	Germany	Germany	Germany	Germany	Germany	Germany
Type	Master's programme	Master of Science (M.Sc.)	Master of Science	Bachelor's degree	Bachelor's degree	Master of Science (MSc)
No. of Credits	180 ECTS	120 ECTS	120 LP	120	180 ECTS	120 ECTS
Duration of Study (SEMESTERS)	6	4	4	4	6	4

Academic institutions in EU countries

Name of Qualification	Applied Bioinformatics (M.Sc.)	BIOINFORMATICS M.SC.	MSc-Master of Science Bioinformatics and Neuroinformatics	Bioinformatics & computational biology	MSc (Bioinformatics)	Bioinformatics
Name of Institution	Johannes Gutenberg Universität Mainz	Universität Leipzig	Hellenic Open University	University College Cork	National University of Ireland	Sapienza Università di Roma
Country	Germany	Germany	Greece	Ireland	Ireland	Italy
Type	Master of Science (MSc)	MSc	Master	Master	Master	Degree Programme
No. of Credits	not mentioned	120 credit points	90 ECTS	90 credits	not mentioned	not mentioned
Duration of Study (SEMESTERS)	4	4	The minimum duration for the completion of the programme is one and a half (1.5) year and the maximum duration is six (6) years.	1 Year Full-time, 2 Years Part-time	not mentioned	3 years

Academic institutions in EU countries

Name of Qualification	Bioinformatics	Bioinformatics	BIOINFORMATICS FOR COMPUTATIONAL GENOMICS	BIOINFORMATICS	Master of Science in Bioinformatics	Bioinformatics (MSc)
Name of Institution	Università degli Studi di Verona	Università di Bologna	UNIVERSITA' DEGLI STUDI DI MILANO	VYTAUTAS MAGNUS UNIVERSITY	L-Università ta' Malta	Universiteit Leiden
Country	Italy	Italy	Italy	Lithuania	Malta	Netherlands
Type	Bachelor's Degrees	Master	Master/Dottore Magistrale	Bachelor	Master	Master
No. of Credits	not mentioned	not mentioned	120 credits	Volume in ECTS credit: 3	90 ECTS	120 ECs
Duration of Study (SEMESTERS)	3 years	2 years	2years	3years	3	2 years

Academic institutions in EU countries

Name of Qualification	Bioinformatics and Systems Biology (joint degree UvA/VU)	BSc minor Bioinformatics (WUBIF)	Master's Bioinformatics	BIOINFORMATICS	Bioinformatics (Master)	Bioinformatics and Computacional Biology
Name of Institution	University of Amsterdam	Wageningen University & Research	Wageningen University & Research	Wroclaw University of Science and Technology	University of Minho School of Engineering	Universidade de Lisboa
Country	Netherlands	Netherlands	Netherlands	Poland	Portugal	Portugal
Type	Master	Thematic minor	Master	Master	Master	Master
No. of Credits	120 ECTS	not mentioned	not mentioned	not mentioned	120 ECTS	120 ECTS
Duration of Study (SEMESTERS)	2 years	1	2 years	3 or 4	4	4

Academic institutions in EU countries

Name of Qualification	Bioinformatics	Bioinformatics	Postgraduate 2nd degree study programme Bioinformatics	Bioinformatics and Biostatistics	Official master's degree in Bioinformatics	MSc in Bioinformatics
Name of Institution	Comenius University Bratislava	University of Primorska	University of Maribor	Universitat Barcelona	Universitat Autònoma de Barcelona	Lund University
Country	Slovakia	Slovenia	Slovenia	Spain	Spain	Sweden
Type	Bachelor's degree	"diplomirani bioinformatik (UN)" equiv. to B.Sc. in Bioinformatics	Postgraduate	Master's degree	Master's degree	Master's degree
No. of Credits	not mentioned	180ECTS	120ECTS	60ECTS	60ECTS	120ECTS
Duration of Study (SEMESTERS)	3 years conversion program 4 years	6	2 years	not mentioned	1 year	2 years

Academic institutions in EU countries

Name of Qualification	Master's Programme in Bioinformatics	Molecular Bioinformatics	Bioinformatics - Master's Programme
Name of Institution	Uppsala University	University of Skövde	University of Skövde
Country	Sweden	Sweden	Sweden
Type	Master's degree	Bachelor's (1st cycle)	Master's (2nd cycle)
No. of Credits	120credits	180 credits	60 credits
Duration of Study (SEMESTERS)	4	3years	1 year

Research centers in EU countries

COUNTRY	AUSTRIA	AUSTRIA	AUSTRIA	AUSTRIA	AUSTRIA
RESEARCH CENTRE	AIT AUSTRIAN INSTITUTE OF TECHNOLOGY GMBH	Vienna BioCenter	Austrian Bioinformatics Platform	Institute of Bioinformatics, Johannes Kepler University Linz	Center for Integrative Bioinformatics Vienna
City	Vienna	Vienna	Graz	Linz	Vienna
Type of research centre	not university-based	Under University of Vienna (Univesitat of Wien)	Technical University of Graz, Medical University of Graz	Johannes Kepler University Linz	It is a joint research platform of University of Vienna and Medical University of Vienna.

Research centers in EU countries

COUNTRY	BULGARIA	BULGARIA	BULGARIA	BULGARIA	BELGIUM
RESEARCH CENTRE	Bulgarian Institute of Bioinformatics	Institute of Biophysics and Biomedical Engineering Bulgarian Academy of Sciences	BioInfoTech lab	PlantaSYST	Interuniversity Institute of Bioinformatics in Brussels
City	Sofia	Sofia	Sofia	Plovdiv	Brussel
Type of research centre	non-profit organization engaged in bioinformatical processing in the field of genomic research	not university-based	not university-based	not university-based	interuniversity, cross-faculty (Medicine, Sciences, and Applied Sciences) collaborative space located on the La Plaine campus of the Université Libre de Bruxelles

Research centers in EU countries

COUNTRY	BELGIUM	BELGIUM	Czech Republic	Denmark	Denmark
RESEARCH CENTRE	Leuven Biostatistics and Statistical Bioinformatics Centre	Van de Peer Lab	INSTITUTE OF MICROBIOLOGY OF THE CZECH ACADEMY OF SCIENCES Laboratory of Bioinformatics	Bioinformatics Centre	Bioinformatics Research Centre (BiRC)
City	Leuven	Zwijnaarde	Prague	Copenhagen	Aarhus
Type of research centre	The Interuniversity Institute for Biostatistics and statistical Bioinformatics (I-BioStat) unites the Hasselt Biostatistics and statistical Bioinformatics Center (H-BioStat), also known as Center for Statistics (CenStat), and Leuven Biostatistics and statistical Bioinformatics Centre (L-BioStat) (formerly the Biostatistical Centre)	not university-based	not-university based	Faculty of Science at University of Copenhagen	Under AARHUS UNIVERSITY

Research centers in EU countries

COUNTRY	ESTONIA	FINLAND	FINLAND	FRANCE	FRANCE
RESEARCH CENTRE	TALTECH BIOINFORMATICS	Bioinformatics Center	Medical Bioinformatics Centre	the French Institute of Bioinformatics (IFB)	THE CENTER OF BIOINFORMATICS, BIostatISTICS AND INTEGRATIVE BIOLOGY (C3BI)
City	Tallinn	Joensuu, Kuopio	Turku		Paris
Type of research centre	Under TalTech University	University of Eastern Finland	not-university based	not-university based	not-university based

Research centers in EU countries

COUNTRY	GERMANY	GERMANY	GERMANY	GERMANY	GREECE
RESEARCH CENTRE	Helmholtz Zentrum München German Research Center for Environmental Health (GmbH) Institute of Bioinformatics and Systems Biology	Center for Bioinformatics Saar	Heidelberg Center for Human Bioinformatics (HD-HuB)	Center for Bioinformatics (ZBH) of the University of Hamburg	BIOMEDICAL RESEARCH FOUNDATION ACADEMY OF ATHENS
City	Neuherberg	Saarbrücken, Saarland	Heidelberg	Hamburg	Athens
Type of research centre	not-university based	The Center for Bioinformatics Saar (CBI) engages in research and teaching in a highly modern area of science and is a model institution for interdisciplinary research on the campus of Saarland University (UdS).	not university-based	University of Hamburg	Not university based

Research centers in EU countries

COUNTRY	GREECE	HUNGARY	HUNGARY	IRELAND	ITALY
RESEARCH CENTRE	Foundation for Research and Technology - Hellas (FORTH)	Genomics and Bioinformatics Core Facility (Located in the Szentágothai Research Centre at the University of Pécs)	Bioinformatics Research Group	Centre for Bioinformatics	Institute for Biomedical Technologies Bioinformatics (Bari)
City	Crete	Pécs	Budapest	Dublin	
Type of research centre	Not university based	University of Pécs	University of Veterinary Medicine Budapest	University College Dublin	Not university-based

Research centers in EU countries

COUNTRY	ITALY	ITALY	LATVIA	LATVIA	LATVIA
RESEARCH CENTRE	Santa Lucia	Computational Biology Research Centre at Human Technopole	Bioinformatics Research Unit	Latvian Biomedical research and study centre BIOINFORMATICS CORE FACILITY	LABORATORY OF GENOMICS AND BIOINFORMATIONS
City	Rome	Milano	Rīga	Rīga	Rīga
Type of research centre	Not university-based	Not university-based	Rīga Stradiņš University (RSU)	Not university based	University of Latvia

Research centers in EU countries

COUNTRY	LITHUANIA	LUXEMBOURG	LUXEMBOURG	MALTA	NETHERLANDS
RESEARCH CENTRE	Laboratory of Biophysics and Bioinformatics	Bioinformatics Core	LUXEMBOURG INSTITUTE OF HEALTH BIOINFORMATICS (BIOINFO) PLATFORM	Bioinformatics research group	Bioinformatics group
City	Kaunas				Wageningen
Type of research centre	Lithuanian University of Health Sciences	Université du Luxembourg	Not univeristy based	University of Malta	Wageningen University & Research

Research centers in EU countries

COUNTRY	NETHERLANDS	NETHERLANDS	POLAND	POLAND	PORTUGAL
RESEARCH CENTRE	Dutch Techcentre for Life Sciences (DTL)	Utrecht Bioinformatics Center	European Centre for Bioinformatics and Genomics (ECBiG)	Mossakowski Medical Research Institute Polish Academy of Sciences	CIBIO – Research Centre in Biodiversity and Genetic Resources - InBIO Associate Laboratory
City	Utrecht	Utrecht	Warszawa	Warszawa	Porto
Type of research centre	Not university based	Not university based	Not university based	Not university based	University of Porto

Research centers in EU countries

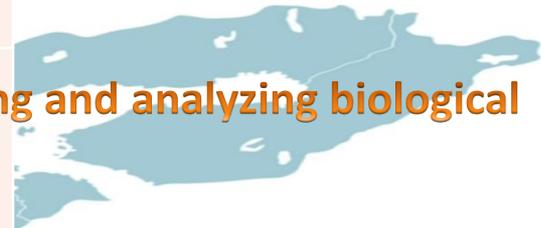
COUNTRY	ROMANIA	ROMANIA	SLOVENIA	SPAIN	SWEDEN
RESEARCH CENTRE	Institute of Biochemistry BIOINFORMATICS AND COMPUTATIONAL DATA CENTRE	Stefan S.Nicolau Institute of Virology Bioinformatics and Hardware Group	Bioinformatics Laboratory - University of Ljubljana	Barcelona Supercomputing Center - Spanish National Bioinformatics Institute (INB)/ELIXIR-ES, Computational team	Centre for Bioinformatics and Biostatistics (CBB)
City	Bucharest	Bucharest	Ljubljana	Barcelona	Stockholm
Type of research centre	Not university based	Not university based	University of Ljubljana	Not university based	Karolinska Institutet

Research centers in EU countries

COUNTRY	SWEDEN	Sweden
RESEARCH CENTRE	Stockholm Bioinformatics Center	Komorowski's Bioinformatics Lab
City	Stockholm	Uppsala
Type of research centre	Not university based	Uppsala University

Main focuses :

- Providing computational services in screening, managing and analyzing biological data to their community.
- Provide support in academic researches and aim for journal publications with excellent quality.
- Handling local data and information in more specific areas such as plants, human genes and diseases.



Research centers in EU countries

Main focuses :

- **Providing computational services in screening, managing and analyzing biological data to their community.**
- **Provide support in academic researches and aim for journal publications with excellent quality.**
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- Standards to assess the knowledge and skill sets of students passing out of various institutions.
- The potential for broadening the scope of bioinformatics to transform it into a data intensive discovery discipline is to be explored and discovered.
- This necessitates introduction of amendments in the existing curricula to accommodate the upcoming developments.

THANK YOU!