

BIOLOGY OLYMPIAD TRAINING CAMPS



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HOW TO PREPARE FOR THE BIOLOGY OLYMPIAD

READ TEXTBOOKS

TOP 7 BOOKS FOR THE BIOLOGY OLYMPIAD

- **BIOLOGY** BY CAMPBELL
- **HUMAN PHYSIOLOGY** BY VANDERS
- **PLANT BIOLOGY** BY RAVEN
- **BIOCHEMISTRY** BY HARVEY
- **GENETICS** BY BROOKER
- **HOW TO PREPARE FOR THE BIOLOGY OLYMPIAD**
- **MOLECULAR BIOLOGY OF THE CELL** BY ALBERTS



JOIN THE STUDY GROUP

JOIN HUNDREDS OF YOUNG **BIOLOGY ENTHUSIASTS** WHO ARE SHARING THE BEST TIPS AND TRICKS FOR THE BIOLOGY OLYMPIAD PREPARATION

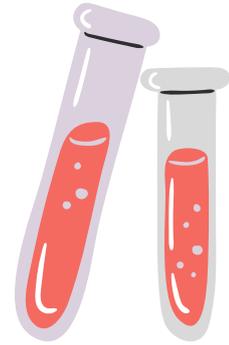
TO JOIN THE **GROUP**, SIMPLY GOOGLE **BIOLYMPIADS-STUDY-GROUP**

JOIN BIOLYMPIADS TRAINING COURSES

GAIN BIOLOGY KNOWLEDGE DURING ONLINE CLASSES WITH THE BEST BIOLOGY OLYMPIAD TUTORS IN **BIOLYMPIADS TRAINING CAMPS**

ALTERNATIVELY, JOIN **BIOLYMPIADS CRASH COURSE** WITH OVER 200 VIDEOS PREPARED SPECIFICALLY FOR THE BIOLOGY OLYMPIAD

STEP
01



STEP
02

DO PAST PAPERS

CHECK OUT THE **PAST PAPERS** FROM DIFFERENT BIOLOGY OLYMPIADS FROM ALL AROUND THE WORLD ON **BIOLYMPIADS.COM**

STEP
03



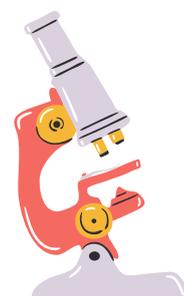
DEVELOP PRACTICAL SKILLS

LEARN THE MAIN WET **LAB TECHNIQUES** AND GET **PRACTICAL EXPERIENCE** BY DOING EXPERIMENTS. TO GET YOU STARTED, REVIEW "**DEVELOPING PRACTICAL SKILLS**" SECTION ON **BIOLYMPIADS.COM**

STEP
04

ALSO SEARCH FOR **INTERNSHIP OPPORTUNITIES** IN YOUR AREA

STEP
05



PRACTICAL SKILLS

FOR BIOLOGY OLYMPIAD

CELL BIOLOGY

USE OF A MICROTOME TO MAKE SLIDES, CELL FRACTIONATION, MICROSCOPY, IMMUNOSTAINING, HISTOLOGY, HAEMOCYTOMETER, DRAWING OF PREPARATIONS, MACERATION AND SQUASH TECHNIQUE, SMEAR METHOD, STAINING OF CELLS

BIOCHEMISTRY

ACID-BASE EQUILIBRIUM, K_{eq} VALUES, SPECTROPHOTOMETRY (BEER-LAMBERT LAW), NET CHARGES OF AMINO ACIDS AND PEPTIDES, TITRATION CURVES OF AMINO ACIDS, CHROMATOGRAPHY, COLORIMETRY, ENZYME KINETICS, ENZYME INHIBITION (LINEWEAVER-BURK PLOT, MICHAELIS-MENTEN EQUATION), DNA EXTRACTION, SERIAL DILUTIONS, CONCENTRATIONS, MOLAR SOLUTIONS, PH AND BUFFERS, HENDERSON HASSELBACH EQUATION, PIPETTING LIQUIDS, MICROFILTRATION, PROTEIN PURIFICATION, PROTEIN QUANTIFICATION, DIALYSIS, CALIBRATION CURVES, BIURET'S TEST, SUDAN TEST, NINHYDRIN TEST, LUGOL'S SOLUTION TEST, BENEDICT'S SOLUTION TEST, FEHLING REACTION, TOLLENS' REAGENT TEST, BRADFORD PROTEIN ASSAY, PAPER BAG TEST

MOLECULAR BIOLOGY

2D ELECTROPHORESIS, PAGE, GEL ELECTROPHORESIS, SDS-PAGE, ISOELECTRIC FOCUSING, WESTERN BLOT, NORTHERN BLOT, SOUTHERN BLOT, EASTERN BLOT, HYBRIDIZATION, A SIMPLE IMMUNOPRECIPITATION ASSAY, ELISA, POLYMERASE CHAIN REACTION (PCR), RT-PCR, MAPPING GENES, DNA FINGERPRINTING, DERIVING LINKAGE DISTANCE AND GENE ORDER FROM THREE-POINT CROSSES, GENETIC ENGINEERING, RESTRICTION ENDONUCLEASES, RESTRICTION MAPS, RFLP, FISH, G-STAIN, POLYMERASE CHAIN REACTION (PCR), RT-PCR, RNA INTERFERENCE, GENETIC MANIPULATION, CRISPR-CAS9 SYSTEM

PLANT BIOLOGY

POTOMETRY, MAKING SECTIONS OF PLANT MATERIALS AND STAINING THEM, IDENTIFYING PLANT STRUCTURES AND ORGANS (LEAVES, STEMS, ROOTS, FLOWERS, FRUITS, ETC.), DISCRIMINATING MAJOR PLANT GROUPS (E.G., ALGAE, MOSSES, FERNS, AND SPERMATOPHYTES), FLORAL MORPHOLOGY, FLORAL FORMULAS AND DIAGRAMS, STAINING AND SLIDE PREPARATION OF PLANT TISSUES, ELEMENTARY MEASUREMENT OF PHOTOSYNTHESIS, MEASUREMENT OF TRANSPIRATION

EVOLUTION, ETHOLOGY, PHYLOGENETICS, ECOLOGY

IDENTIFICATION KEYS FOR VARIOUS ORGANISMS, UPGMA, OBSERVE AND INTERPRET ANIMAL BEHAVIOUR (HABITUATION AND SENSITISATION, ASSOCIATIVE LEARNING, SOCIAL LEARNING, IMPRINTING, FORAGING BEHAVIOUR, INSIGHT, LATENT LEARNING), CONSTRUCTION OF SIMPLE DICHOTOMOUS KEYS, IDENTIFICATION OF THE MOST COMMON FLOWERING-PLANT FAMILIES, IDENTIFICATION OF INSECT ORDERS, IDENTIFICATION OF PHyla AND CLASSES OF OTHER ORGANISMS, HARDY WEINBERG FORMULA, ESTIMATION OF POPULATION DENSITY, BIOMASS, WATER AND AIR QUALITY

ANIMAL BIOLOGY

MAKE DISSECTIONS OF AN INVERTEBRATE (PH. ANNELIDA, ARTHROPODA, OR MOLLUSCA) AND IDENTIFY THE MAIN MACROSCOPIC ORGANS, WHOLE - MOUNT SLIDE PREPARATION OF SMALL INVERTEBRATES, ELEMENTARY MEASUREMENT OF RESPIRATION

MICROBIOLOGY

BACTERIAL TRANSFORMATION, GRAM STAINING, LOG SCALES, INOCULATION AND ASEPTIC TECHNIQUES

STATISTICS

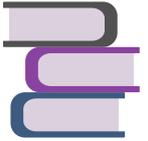
CHI SQUARE, STUDENT'S T-TEST, PROBABILITY AND PROBABILITY DISTRIBUTIONS, MEAN, MEDIAN, PERCENTAGE, VARIANCE, STANDARD DEVIATION, STANDARD ERROR, BAYES' THEOREM, BINOMIAL EXPANSION FORMULA

ABOUT BIOLYMPIADS

BIOLYMPIADS.COM IS THE LEADING WEBSITE WHICH HELPS STUDENTS FROM AROUND THE WORLD PREPARE FOR THE REGIONAL, NATIONAL & INTERNATIONAL **BIOLOGY OLYMPIADS**.

ESTABLISHED BY A PARTICIPANT OF THE **INTERNATIONAL BIOLOGY OLYMPIAD 2012 & 2013**, WE AIM TO ENCOURAGE STUDENTS TO PARTICIPATE IN SCIENCE COMPETITIONS & TO SPREAD AWARENESS ABOUT THESE OPPORTUNITIES GLOBALLY.

SINCE **2018**, BIOLYMPIADS.COM HAS PUBLISHED **5** BOOKS WHICH ARE SOLD ON **AMAZON**.



ALSO BIOLYMPIADS.COM HAS RELEASED THE **CRASH COURSE** FOR THE **BIOLOGY OLYMPIAD** WITH OVER **200** VIDEOS.

SINCE 2020, BIOLYMPIADS.COM HAS BEEN RUNNING **ONLINE TRAINING CAMPS** TO HELP STUDENTS PREPARE FOR SCIENCE COMPETITIONS.

2014

BIOLYMPIADS.COM WAS FOUNDED BY **MARTYNA PETRULYTE**

2018

FIRST BIOLYMPIADS BOOK **HOW TO PREPARE FOR THE BIOLOGY OLYMPIADS AND SCIENCE COMPETITIONS** WAS PUBLISHED

2020

BIOLYMPIADS CRASH COURSE WAS PUBLISHED **BIOLYMPIADS TRAINING CAMPS** WERE STARTED

WHAT WE OFFER



1-TO-1 TUTORING CLASSES

OUR EXPERIENCED TUTORS WILL DESIGN A PERSONALISED STUDY PLAN AND HELP YOU GAIN KNOWLEDGE IN INTENSIVE BIOLOGY CLASSES



FREE STUDY RESOURCES

ON OUR WEBSITE YOU WILL FIND A WIDE VARIETY OF STUDY RESOURCES, RANGING FROM HANDOUTS TO PRESENTATIONS. IN ADDITION, YOU WILL FIND MANY TIPS & TRICKS ON HOW TO PREPARE FOR THE OLYMPIAD.

ONLINE TRAINING CAMPS

JOIN A GROUP OF PASSIONATE BIOLOGY STUDENTS AND LEARN TOGETHER FROM THE BEST IN OUR INTENSIVE ONLINE TRAINING CAMPS.



CRASH COURSE

WITH OVER 200 VIDEOS OUR CRASH COURSE COVERS ALL KEY TOPICS TESTED IN THE BIOLOGY OLYMPIAD.



TYPES OF CAMPS

BIOLYMPIADS.COM OFFERS A WIDE RANGE OF COURSES TO HELP STUDENTS PREPARE FOR THE BIOLOGY OLYMPIADS AND COMPETITIONS. BELOW YOU WILL FIND A COMPARISON OF THE MOST POPULAR COURSES.

COURSE NAME	INTRODUCTORY BIOLOGY OLYMPIAD CAMP	ADVANCED USABO TRAINING CAMP: PART 1	ADVANCED USABO TRAINING CAMP: PART 2
DURATION	26 WEEKS 	12 WEEKS	14 WEEKS 
CLASS TIMETABLE	1 HR • SATURDAY 1 HR • SUNDAY	2 HRS • SATURDAY 2 HRS • SUNDAY	2 HRS • SATURDAY 2 HRS • SUNDAY
GROUP SIZE	5-10 STUDENTS 	5-10 STUDENTS 	5-10 STUDENTS 
PREREQUISITES	NONE 	HAVING READ CAMPBELL BIOLOGY 3-4 TIMES	HAVING READ CAMPBELL BIOLOGY 3-4 TIMES
WHAT TOPICS ARE COVERED	ALL CHAPTERS FROM CAMPBELL BIOLOGY BY REECE ET AL.	CELL BIOLOGY (30%) BIOCHEMISTRY (20%) GENETICS & EVOLUTION (20%) PLANT ANATOMY & PHYSIOLOGY (20%)	HUMAN PHYSIOLOGY & ANATOMY (50%) BIOSYSTEMATICS (20%) ZOOLOGY (20%) ECOLOGY (5%) ETHOLOGY (5%)
COURSE TEXTBOOKS	 CAMPBELL BIOLOGY BY REECE ET AL. 	BIOSYSTEMATICS • CAMPBELL BIOLOGY ZOOLOGY • CAMPBELL BIOLOGY HUMAN ANATOMY & PHYSIOLOGY • VANDER'S HUMAN PHYSIOLOGY BY WIDMAIER • HUMAN PHYSIOLOGY BY LAURALEE SHERWOOD ECOLOGY & ETHOLOGY • CAMPBELL BIOLOGY 	CELL BIOLOGY • MOLECULAR BIOLOGY OF THE CELL BY ALBERTS • LEHNINGER PRINCIPLES OF BIOCHEMISTRY • BIOCHEMISTRY BY HARVEY  GENETICS & EVOLUTION: • GENETICS: ANALYSIS AND PRINCIPLES BY BROOKER • PLANT ANATOMY & PHYSIOLOGY • BIOLOGY OF PLANTS BY RAVEN
TEACHING PATTERN	50 MIN TEACHING + 10 MIN QUESTIONS	50 MIN TEACHING + 20 MIN QUESTIONS + 50 MIN TEACHING	50 MIN TEACHING + 20 MIN QUESTIONS + 50 MIN TEACHING
COURSE FEE	\$1400	\$1200	\$1400

INTRODUCTORY BIOLOGY OLYMPIAD TRAINING CAMP

THE **INTRODUCTORY BIOLOGY OLYMPIAD TRAINING CAMP** FOCUSES ON PREPARING STUDENTS FOR VARIOUS BIOLOGY OLYMPIADS, INCLUDING THE **USA BIOLOGY OLYMPIAD (USABO)**, **BRITISH BIOLOGY OLYMPIAD (BBO)** AND **TORONTO BIOLOGY OLYMPIAD** TO NAME A FEW.

OVER THE COURSE OF **26 WEEKS**, IT COVERS THE MOST IMPORTANT CHAPTERS FROM **CAMPBELL BIOLOGY** BY REECE ET AL. THE BREAKDOWN OF TOPICS IS SHOWN BELOW.

I. THE CHEMISTRY OF LIFE

2. THE CHEMICAL CONTEXT OF LIFE
3. WATER AND LIFE
4. CARBON & THE MOLECULAR DIVERSITY OF LIFE
5. THE STRUCTURE & FUNCTION OF LARGE BIOLOGICAL MOLECULES

III. GENETICS

13. MEIOSIS & SEXUAL LIFE CYCLES
14. MENDEL & THE GENE IDEA
15. THE CHROMOSOMAL BASIS OF INHERITANCE
16. THE MOLECULAR BASIS OF INHERITANCE
17. FROM GENE TO PROTEIN
18. REGULATION OF GENE EXPRESSION
20. BIOTECHNOLOGY
21. GENOMES AND THEIR EVOLUTION

V. THE EVOLUTIONARY HISTORY OF BIOLOGICAL DIVERSITY

26. PHYLOGENY & THE TREE OF LIFE
27. BACTERIA & ARCHAEA
19. VIRUSES
28. PROTISTS
31. FUNGI
29. PLANT DIVERSITY I: HOW PLANTS COLONIZED LAND;
30. PLANT DIVERSITY II: THE EVOLUTION OF SEED PLANTS
32. AN OVERVIEW OF ANIMAL DIVERSITY
33. AN INTRODUCTION TO INVERTEBRATES
34. THE ORIGIN AND EVOLUTION OF VERTEBRATES

VIII. ECOLOGY

51. ANIMAL BEHAVIOR
52. AN INTRODUCTION TO ECOLOGY & BIOSPHERE
53. POPULATION ECOLOGY
54. COMMUNITY ECOLOGY
55. ECOSYSTEMS & RESTORATION ECOLOGY

II. THE CELL

6. A TOUR OF THE CELL
7. MEMBRANE STRUCTURE & FUNCTION
8. AN INTRODUCTION TO METABOLISM
9. CELLULAR RESPIRATION
10. PHOTOSYNTHESIS
11. CELL COMMUNICATION
12. THE CELL CYCLE

IV. MECHANISMS OF EVOLUTION

22. DESCENT WITH MODIFICATION
23. THE EVOLUTION OF POPULATIONS
24. THE ORIGIN OF SPECIES
25. THE HISTORY OF LIFE ON EARTH

VI. PLANT FORM & FUNCTION

35. PLANT STRUCTURE, GROWTH & DEVELOPMENT
36. RESOURCE ACQUISITION & TRANSPORT IN VASCULAR PLANTS
37. SOIL AND PLANT NUTRITION
38. ANGIOSPERM REPRODUCTION & BIOTECHNOLOGY
39. PLANT RESPONSES TO INTERNAL & EXTERNAL SIGNALS

VII. ANIMAL FORM AND FUNCTION

40. BASIC PRINCIPLES OF ANIMAL FORM & FUNCTION
41. ANIMAL NUTRITION
42. CIRCULATION & GAS EXCHANGE
43. THE IMMUNE SYSTEM
44. OSMOREGULATION AND EXCRETION
45. HORMONES & THE ENDOCRINE SYSTEM
46. ANIMAL REPRODUCTION
47. ANIMAL DEVELOPMENT
48. NEURONS, SYNAPSES & SIGNALING
49. NERVOUS SYSTEMS
50. SENSORY & MOTOR MECHANISMS

INTRODUCTORY BIOLOGY OLYMPIAD TRAINING CAMP SYLLABUS

WEEK	DATE	TOPICS COVERED
I. THE CHEMISTRY OF LIFE		
1	SATURDAY	2. THE CHEMICAL CONTEXT OF LIFE; 3. WATER AND LIFE
	SUNDAY	4. CARBON AND THE MOLECULAR DIVERSITY OF LIFE; 5. THE STRUCTURE AND FUNCTION OF LARGE BIOLOGICAL MOLECULES

II. THE CELL		
2	SATURDAY	6. A TOUR OF THE CELL
	SUNDAY	7. MEMBRANE STRUCTURE AND FUNCTION
3	SATURDAY	8. AN INTRODUCTION TO METABOLISM
	SUNDAY	9. CELLULAR RESPIRATION AND FERMENTATION
4	SATURDAY	10. PHOTOSYNTHESIS
	SUNDAY	11. CELL COMMUNICATION
5	SATURDAY	12. THE CELL CYCLE
	SUNDAY	REVIEW OF UNIT I AND II

III. GENETICS		
6	SATURDAY	13. MEIOSIS AND SEXUAL LIFE CYCLES 14. MENDEL AND THE GENE IDEA
	SUNDAY	15. THE CHROMOSOMAL BASIS OF INHERITANCE
7	SATURDAY	16. THE MOLECULAR BASIS OF INHERITANCE
	SUNDAY	17. FROM GENE TO PROTEIN
8	SATURDAY	18. REGULATION OF GENE EXPRESSION
	SUNDAY	20. BIOTECHNOLOGY 21. GENOMES AND THEIR EVOLUTION
9	SATURDAY	REVIEW OF UNIT III

IV. MECHANISMS OF EVOLUTION		
9	SUNDAY	22. DESCENT WITH MODIFICATION: A DARWINIAN VIEW OF LIFE; 23. THE EVOLUTION OF POPULATIONS
10	SATURDAY	24. THE ORIGIN OF SPECIES; 25. THE HISTORY OF LIFE ON EARTH
	SUNDAY	REVIEW OF UNIT IV

V. THE EVOLUTIONARY HISTORY OF BIOLOGICAL DIVERSITY		
11	SATURDAY	26. PHYLOGENY AND THE TREE OF LIFE
	SUNDAY	27. BACTERIA AND ARCHAEA; 19. VIRUSES
12	SATURDAY	28. PROTISTS; 31. FUNGI
	SUNDAY	29. PLANT DIVERSITY I: HOW PLANTS COLONIZED LAND; 30. PLANT DIVERSITY II: THE EVOLUTION OF SEED PLANTS
13	Saturday	32. An Overview of Animal Diversity

	SUNDAY	33. AN INTRODUCTION TO INVERTEBRATES
14	SATURDAY	34. THE ORIGIN AND EVOLUTION OF VERTEBRATES
	SUNDAY	REVIEW OF UNIT V

VI. PLANT FORM AND FUNCTION

15	SATURDAY	35. PLANT STRUCTURE, GROWTH, AND DEVELOPMENT
	SUNDAY	36. RESOURCE ACQUISITION AND TRANSPORT IN VASCULAR PLANTS; 37. SOIL AND PLANT NUTRITION
16	SATURDAY	38. ANGIOSPERM REPRODUCTION AND BIOTECHNOLOGY
	SUNDAY	39. PLANT RESPONSES TO INTERNAL AND EXTERNAL SIGNALS
17	SATURDAY	REVIEW OF UNIT VI

VII. ANIMAL FORM AND FUNCTION

17	SUNDAY	40. BASIC PRINCIPLES OF ANIMAL FORM AND FUNCTION; TISSUES AND ORGAN SYSTEMS
18	SATURDAY	41. ANIMAL NUTRITION
	SUNDAY	42. CIRCULATION AND GAS EXCHANGE
19	SATURDAY	43. THE IMMUNE SYSTEM
	SUNDAY	44. OSMOREGULATION AND EXCRETION
20	SATURDAY	45. HORMONES AND THE ENDOCRINE SYSTEM
	SUNDAY	46. ANIMAL REPRODUCTION
21	SATURDAY	47. ANIMAL DEVELOPMENT
	SUNDAY	48. NEURONS, SYNAPSES, AND SIGNALING
22	SATURDAY	49. NERVOUS SYSTEMS
	SUNDAY	50. SENSORY AND MOTOR MECHANISMS
23	SATURDAY	REVIEW OF UNIT VII
	SUNDAY	REVIEW OF UNIT VII

VIII. ECOLOGY

24	SATURDAY	51. ANIMAL BEHAVIOR
	SUNDAY	52. AN INTRODUCTION TO ECOLOGY AND THE BIOSPHERE
25	SATURDAY	53. POPULATION ECOLOGY
	SUNDAY	54. COMMUNITY ECOLOGY
26	SATURDAY	55. ECOSYSTEMS AND RESTORATION ECOLOGY
	SUNDAY	REVIEW OF UNIT VIII

ADVANCED USABO TRAINING CAMP

PART 1

THE **ADVANCED USABO TRAINING CAMP** FOCUSES ON PREPARING PARTICIPANTS FOR THE **USA BIOLOGY OLYMPIAD (BIOLYMPIAD)** COMPETITION.

OVER THE COURSE OF **12 WEEKS**, PART 1 COVERS **4 MODULES** WHICH COME UP IN THE USABO EXAMS. THE BREAKDOWN OF TOPICS IS:

CELL BIOLOGY

30%

EUKARYOTIC CELL STRUCTURE & ORGANELLES
CYTOSKELETON
CELL JUNCTIONS
MEMBRANE TRANSPORT CHANNELS & PUMPS
TONICITY
PROKARYOTIC CELLS
VIRUSES
CELL CYCLE, APOPTOSIS & NECROSIS
CELL SIGNALING



INTRODUCTION TO BIOCHEMISTRY
CHEMICAL TESTS USED TO IDENTIFY BIOMOLECULES
AMINO ACIDS; PROTEINS; ENZYMES & ENZYME KINETICS
NUCLEIC ACIDS
CARBOHYDRATES
LIPIDS
VITAMINS

INTRODUCTION TO METABOLIC PROCESSES
THERMODYNAMICS
PHOTOSYNTHESIS
SUGAR UTILIZATION
UREA CYCLE
GLUCONEOGENESIS
GLYOXYLATE CYCLE
FATTY ACID METABOLISM
HORMONAL REGULATION OF METABOLISM



BIOCHEMISTRY

20%

CHROMOSOME VARIATION
BASIC PRINCIPLES OF HEREDITY
GENETIC PEDIGREE ANALYSIS
GENETIC CROSSES
EXTENSIONS TO MENDELIAN INHERITANCE
GENE LINKAGE & RECOMBINATION
DNA SYNTHESIS & REPAIR
RNA SYNTHESIS & TRANSLATION
POST-TRANSLATIONAL MODIFICATIONS
GENE REGULATION IN EUKARYOTES
BACTERIAL GENETICS
POPULATION GENETICS
EVOLUTIONARY GENETICS
DEVELOPMENTAL GENETICS
BIOTECHNOLOGY TECHNIQUES



GENETICS & EVOLUTION

20%

PLANT CLASSIFICATION
EVOLUTION OF PLANTS
NONVASCULAR PLANTS
VASCULAR SEEDLESS PLANTS
VASCULAR SEED PLANTS
GYMNOSPERMS
ANGIOSPERMS
FLOWERING PLANT ANATOMY
FRUIT TYPES
FLORAL FORMULAS; DICOT & MONOCOT FAMILIES
PLANT TISSUES & ORGANS
CROSS SECTIONS OF ROOTS, STEMS & LEAVES
PLANT HORMONES
NASTIES & TROPISMS



PLANT ANATOMY & PHYSIOLOGY

20%



ADVANCED USABO TRAINING CAMP: PART 1

SYLLABUS

WEEK	DATE	TOPICS COVERED
BIOCHEMISTRY & CELL BIOLOGY		
1	SATURDAY	INTRODUCTION TO BIOCHEMISTRY FOR THE BIOLOGY OLYMPIAD; CHEMICAL TESTS USED TO IDENTIFY BIOMOLECULES
	SUNDAY	AMINO ACIDS; PROTEINS; ENZYMES AND ENZYME KINETICS
2	SATURDAY	NUCLEIC ACIDS; CARBOHYDRATES; LIPIDS; VITAMINS
	SUNDAY	EUKARYOTIC CELL STRUCTURE AND ORGANELLES
3	SATURDAY	CYTOSKELETON; CELL JUNCTIONS; MEMBRANE TRANSPORT; TONICITY
	SUNDAY	PROKARYOTIC CELLS; VIRUSES
4	SATURDAY	CELL CYCLE; APOPTOSIS; NECROSIS; CELL SIGNALING
	SUNDAY	INTRODUCTION TO METABOLIC PROCESSES; THERMODYNAMICS; PHOTOSYNTHESIS
5	SATURDAY	CELLULAR RESPIRATION; ANAEROBIC RESPIRATION; CORI CYCLE; CAHILL CYCLE
	SUNDAY	UREA CYCLE; GLUCONEOGENESIS; GLYOXYLATE CYCLE; FATTY ACID METABOLISM; HORMONAL REGULATION OF METABOLISM
GENETICS AND EVOLUTION		
6	SATURDAY	CHROMOSOME VARIATION; BASIC PRINCIPLES OF HEREDITY; GENETIC PEDIGREES
	SUNDAY	EXTENSIONS TO MENDELIAN INHERITANCE; EPISTASIS; CHI SQUARE; GENE LINKAGE AND RECOMBINATION
7	SATURDAY	DNA SYNTHESIS; DNA REPAIR; RNA SYNTHESIS
	SUNDAY	TRANSLATION; POST-TRANSLATIONAL MODIFICATIONS; GENE REGULATION IN EUKARYOTES
8	SATURDAY	BACTERIAL GENETICS; GENE REGULATION IN BACTERIA (LAC AND TRP OPERONS); PLASMIDS
	SUNDAY	POPULATION GENETICS; EVOLUTIONARY GENETICS; DEVELOPMENTAL GENETICS
9	SATURDAY	MODEL ORGANISMS IN GENETICS; INTRODUCTION TO BIOTECHNOLOGY TECHNIQUES; MOLECULAR GENETICS TECHNIQUES; PROTEIN-DNA INTERACTIONS
	SUNDAY	PURIFICATION TECHNIQUES; PROTEOMICS; CELL COUNTING TECHNIQUES; SPECTROPHOTOMETRY
10	SATURDAY	HISTOLOGY TECHNIQUES; GENE MANIPULATION; MICROBIOLOGY TECHNIQUES; MICROSCOPY
PLANT ANATOMY AND PHYSIOLOGY		
10	SUNDAY	PLANT CLASSIFICATION; EVOLUTION OF PLANTS; NONVASCULAR PLANTS; VASCULAR SEEDLESS PLANTS; VASCULAR SEED PLANTS; GYMNOSPERMS
11	SATURDAY	ANGIOSPERMS; FLOWERING PLANT ANATOMY; FRUIT TYPES; FLORAL FORMULAS; DICOT AND MONOCOT FAMILIES
	SUNDAY	PLANT TISSUES AND ORGANS; CROSS SECTIONS OF ROOTS, STEMS AND LEAVES
12	SATURDAY	CROSS SECTIONS (CONTINUED); PLANT HORMONES; NASTIES AND TROPISMS
	SUNDAY	FINAL REVIEW, QUESTIONS & ANSWERS

ADVANCED USABO TRAINING CAMP

PART 2

THE **ADVANCED USABO TRAINING CAMP** FOCUSES ON PREPARING PARTICIPANTS FOR THE USA BIOLOGY OLYMPIAD (BIOLYMPIAD) COMPETITION.

OVER THE COURSE OF **14 WEEKS**, IT COVERS **4** MODULES WHICH WERE NOT COVERED IN PART 1. THE BREAKDOWN OF TOPICS IS:

BIOSYSTEMATICS

20%

INTRODUCTION TO BIOSYSTEMATICS
CLASSIFICATION OF BACTERIA, PROTISTS & FUNGI
CLASSIFICATION OF PLANTS
CLASSIFICATION OF ANIMALS



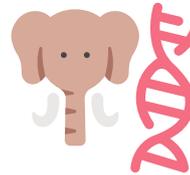
CLASSIFICATION OF ANIMALS
PARAZOANS
DIPLOBLASTIC ANIMALS
TRIPLOBLASTIC ANIMALS
ACOELOMATES
PSEUDOCOELOMATES
ANNELIDS
MOLLUSCS
ARTHROPODS
DEUTEROSTOMES
ECHINODERMATA
CHORDATA
VERTEBRATES
FISH
AMPHIBIANS
BIRDS
MAMMALS
ORDERS OF MAMMALS



ZOOLOGY

20%

INTRODUCTION TO ETHOLOGY
TYPES OF ANIMAL BEHAVIORS
INTRODUCTION TO ECOLOGY
MAJOR AQUATIC BIOMES
MAJOR TERRESTRIAL BIOMES
COMMUNITY ECOLOGY
COMMUNITY STRUCTURE
POPULATION ECOLOGY
ECOSYSTEMS
BIOGEOCHEMICAL CYCLES



ECOLOGY & ETHOLOGY

10%

INTRODUCTION TO BODY TISSUES
OSSEOUS & MUSCLE TISSUE
NERVOUS SYSTEM
ENDOCRINE SYSTEM
DIGESTIVE SYSTEM
CARDIOVASCULAR SYSTEM
LYMPHATIC AND IMMUNE SYSTEMS
URINARY SYSTEM
DEVELOPMENTAL BIOLOGY
REPRODUCTIVE SYSTEM
RESPIRATORY SYSTEM



HUMAN PHYSIOLOGY & ANATOMY

50%



ADVANCED USABO TRAINING CAMP: PART 2

SYLLABUS

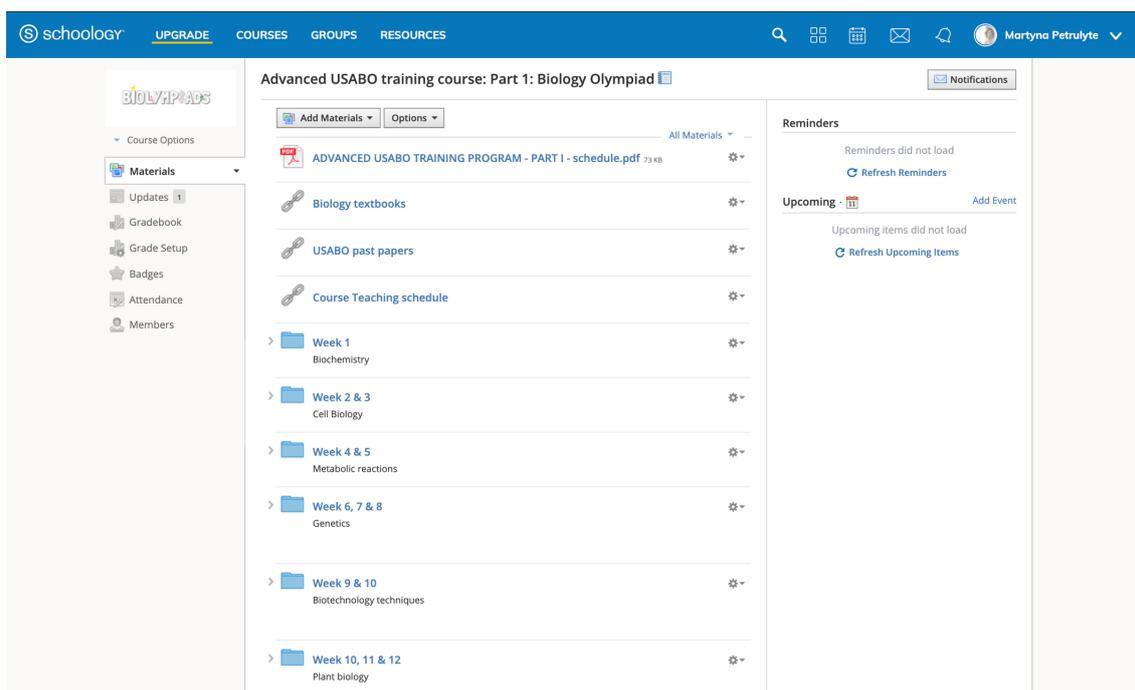
WEEK	DATE	TOPICS COVERED
BIOSYSTEMATICS		
1	SATURDAY	INTRODUCTION TO BIOSYSTEMATICS; CLASSIFICATION OF BACTERIA; PROTISTS; FUNGI
	SUNDAY	CLASSIFICATION OF PLANTS; CLASSIFICATION OF ANIMALS
2	SATURDAY	CLASSIFICATION OF ANIMALS (CONTINUED); BIOSYSTEMATICS PROBLEM SOLVING
ZOOLOGY		
2	SUNDAY	PARAZOANS; DIPLOBLASTIC AND TRIPLOBLASTIC ANIMALS; ACOELOMATES
3	SATURDAY	PSEUDOCOELOMATES; ANNELIDS; MOLLUSCS; ARTHROPODS
	SUNDAY	ARTHROPODS; REVIEW OF INVERTEBRATE ANIMAL GROUPS
4	SATURDAY	DEUTEROSTOMES; ECHINODERMATA; CHORDATA; VERTEBRATES; FISH
	SUNDAY	AMPHIBIANS; BIRDS; MAMMALS; ORDERS OF MAMMALS
HUMAN ANATOMY AND PHYSIOLOGY		
5	SATURDAY	INTRODUCTION TO BODY TISSUES
	SUNDAY	OSSEOUS TISSUE; MUSCLE TISSUE
6	SATURDAY	NERVOUS TISSUE; NEUROPHYSIOLOGY; NEUROTRANSMISSION
	SUNDAY	ANATOMY OF THE BRAIN; SPINAL CORD AND REFLEXES; EFFERENT DIVISIONS OF PNS
7	SATURDAY	SENSORY SYSTEMS
	SUNDAY	ENDOCRINE SYSTEM
8	SATURDAY	ENDOCRINE SYSTEM
	SUNDAY	CARDIOVASCULAR SYSTEM
9	SATURDAY	CARDIOVASCULAR SYSTEM (CONTINUED); RESPIRATORY SYSTEM
	SUNDAY	RESPIRATORY SYSTEM (CONTINUED)
10	SATURDAY	LYMPHATIC AND IMMUNE SYSTEMS
	SUNDAY	LYMPHATIC AND IMMUNE SYSTEMS
11	SATURDAY	DIGESTIVE SYSTEM
	SUNDAY	URINARY SYSTEM
12	SATURDAY	REPRODUCTIVE SYSTEM
	SUNDAY	DEVELOPMENTAL BIOLOGY
ECOLOGY AND ETHOLOGY		
13	SATURDAY	INTRODUCTION TO ETHOLOGY; TYPES OF ANIMAL BEHAVIORS; INTRODUCTION TO ECOLOGY
	SUNDAY	MAJOR AQUATIC AND TERRESTRIAL BIOMES; COMMUNITY ECOLOGY AND STRUCTURE
14	SATURDAY	POPULATION ECOLOGY; ECOSYSTEMS; BIOGEOCHEMICAL CYCLES
	SUNDAY	FINAL REVIEW, QUESTIONS & ANSWERS

LEARNING PLATFORM

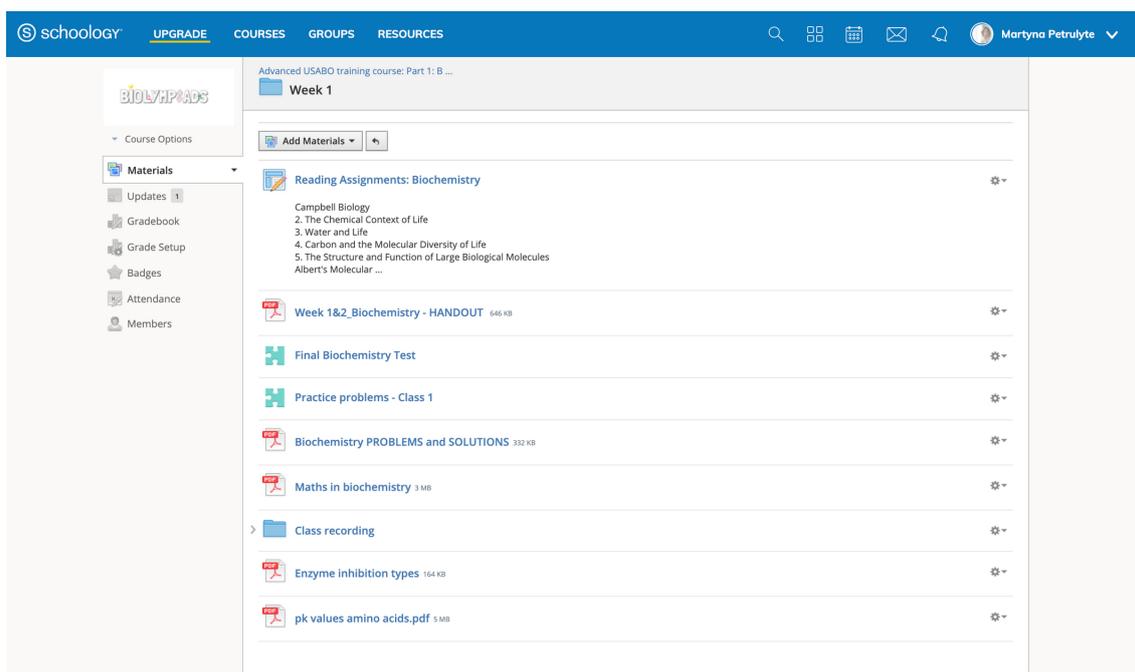
COURSE MATERIALS ARE UPLOADED ON THE **LEARNING SYSTEM** WHICH CAN BE ACCESSED ON **WWW.SCHOOLGY.COM**. ALL STUDENTS WILL RECEIVE ACCESS TO IT AFTER THE REGISTRATION.

IN THE LEARNING PLATFORM, STUDENTS WILL BE ABLE TO ACCESS:

- **WEEKLY READING ASSIGNMENTS**
- **LECTURE HANDOUTS**
- **WEEKLY PRACTICE PROBLEMS & WORKSHEETS**
- **ALL RECORDINGS OF PREVIOUS CLASSES.**



MAIN COURSE PAGE



WEEKLY ASSIGNMENTS & HANDOUTS

MEET OUR TUTORS

MARTYNA PETRULYTE



I am an edupreneur passionate about biology and science education. I created **Biolympiads.com** back in 2014 to spread a word about amazing opportunities for high school students. I have been tutoring students for the biology olympiad for 6 years. In 2018, I published my first book, 'How to Prepare for the Biology Olympiad and Science Competitions'.

- **1994**
I was born in **Lithuania**.
- **2011**
National Lithuanian Biology Olympiad (LitBO) 2011, Gold
- **2012**
National Lithuanian Biology Olympiad (LitBO), Gold
International Biology Olympiad, Bronze
- **2013**
National Lithuanian Biology Olympiad (LitBO), Gold
International Biology Olympiad, Bronze
DNA Day 2013 Essay Competition, Award of the Rector (Lithuania)
European DNA Day 2013 Essay Competition, Honourable Mention
- **2014-2017**
I graduated from the University of Aberdeen with a 1st class degree in **BSc Biomedical Sciences (Anatomy)**
- **2016**
I did a summer internship in **Aberdeen Insulin Pump Clinic** and **EPFL** in Switzerland.
- **2018**
I published my **first book**.
- **2019**
I published 2 books with **worked solutions** for the **USABO**.
- **2020**
I created the **Biolympiads Crash Course** with over 200 videos.



ANNA CULINSCAIA

I am a two-times bronze medalist at the **IBO** and I have been working as a **science tutor** for 3 years. Also I have been in a **Jury Committee** of the **National Olympiad** in my **country** for 3 years. For several years, I have been mentoring alumni from the **School of Molecular and Theoretical Biology (SMTB)**. My Major at the University is **Molecular Biology** and my minor is **Education** (biology teaching).

- **1999**
I was born in **Moldova**
- **2016**
National Moldavian Biology Olympiad, Gold
International Biology Olympiad, Bronze
- **2017**
National Moldavian Biology Olympiad, Gold
International Biology Olympiad, Bronze
- **2018**
I did a summer research internship at the **Broad Institute of Harvard - MIT**
- **2019**
ERASMUS + Program at **Uppsala University**
- **2020**
I got **Amgen Scholars Scholarship** at the **University of Cambridge**



CRYSTALLYNN SKYE THE

I am currently a **medical student** with a background in the **Biomedical Sciences**, and I absolutely love biology!

Inspired by the people I have met throughout the years, I am involved in several projects to share my knowledge and raise awareness of STEM opportunities!

The life sciences is a complex but fascinating field and I look forward to sharing it with you all!

- **1998**
I was born in **Indonesia**
- **2014**
Biolympiads.com was founded
- **2016**
Received the **Creativity, Action, Service Award** for enforcing street children vaccination programmes
- **2018**
Semifinalist at the **Telegraph STEM Awards**, selected as **Top 5** in the country for the **healthcare category** by **GSK**
- **2018**
Conducted **research** on TRH action in the Endocrinology and Molecular Biology Lab at **Barts** and **The London School of Medicine**
- **2018**
Attended the **Society of Endocrinology's** annual **BES Conference**
- **2018**
Awarded as **East London Student Volunteer of the Year** award at **St John Ambulance**
- **2019**
Graduated from **Queen Mary University of London** with **1st Class Honours** in **BSc Biomedical Sciences**.
- **2019**
Enrolled as a **Medical student** at **University College London**.
- **2020**
Joined **Biolympiads** as a **biology tutor**

MEET OUR TUTORS

KIEN LE



I am an enthusiastic undergraduate **Biomedical Science** student at the **Queen Mary University of London**. I have completed the Science and Engineering Foundation Programme at Queen Mary with a Distinction, including 94% in Molecular and Cellular Biology. I also have experience in tutoring secondary students. My interests in biology are cell biology, molecular genetics, and cancer biology.

1999

I was born in Hanoi, Vietnam.

2013

Hanoi Biology Contest, 1st prize



2014-2016

I was selected for the Hanoi-Amsterdam High School for The Gifted's Biology Team for 3 consecutive years
Vietnam National Biology Contest 2016, 3rd prize



2017-2018

I volunteered at Hanoi Oncology Hospital and Vietnam National Institute of Haematology and Blood Transfusion



2020

BSc (Hons) Biomedical Science, Queen Mary University of London



Active member of Biomed Society, Pharmaceutical and Drug Discovery Society, and First Aid Society with St John Ambulance



Biolympiads, Biology Tutor

SYINAT TAGAEVA



I am a first-year undergraduate student at **UCL**, studying **Biomedical Sciences**. By providing my students with advice and mastery, I hope my students will achieve a gold medal in the Biology Olympiad. I have an extensive record of teaching, from preparing students in China for the TOEFL and IELTS to teaching anatomy to young enthusiasts in the UK.

2016

Gold medal in the 2016 RSB Biology Challenge



Lomonosov Moscow State University

2018

I taught at a private school in Guangzhou, China



2019

Silver Medal in the Intermediate Biology Olympiad

Internship at the Oxford Institute of Biomedical Engineering

2019-2020

I worked as a Teacher of Zoology, Anatomy and Russian at the Russian Gymnasium.

I contributed to Oxford University press 'New English File Advanced' English textbook series



2020

Silver medal in the British Biology Olympiad

I started my first year of BSc Biomedical Sciences at University College London (UCL).



I got accepted to Wellcome Genome Campus, where I am currently doing a postgraduate course on Bacterial genomes



SCOTT WADDELL



I am a **PhD student** at the **University of Edinburgh**. Having studied biology for over 10 years, I have specialised in **molecular** and **cellular biology**. I have a passion for and a broad background in **biological research**, having worked in microbiology, genetics and cancer labs. Throughout my PhD, I have been involved in numerous **teaching** roles: from **mentoring students** in the lab to promoting STEM and **tutoring** pupils biology in schools.

1994

I was born in Scotland, UK

2012-2016

University of Glasgow
I graduated with a 1st class degree in BSc Biochemistry



2014-2015

I did summer research projects at Moredun Research Institute in bacteriology and aquaculture in 2014 and 2015



2016

I did my Honours Research Project at the British Heart Foundation Glasgow Cardiovascular Research Centre in molecular biology and cardiovascular sciences



2016-2017

University of Edinburgh
MSc Drug Discovery & Translational Biology



2017

MSc Research Project as part of a Cancer Research UK lab group. The project looked at drug therapeutics in ovarian cancer



2017

I started my PhD graduate programme at MRC Institute of Genetics & Molecular Medicine, completing small research projects in genetics and computational biology



2018

I began my PhD project investigating the molecular and cellular biology of bile duct cancer at MRC Human Genetics Unit



MEET OUR TUTORS

ALANA CULLEN

I am a **Science Communication** student at **Imperial College London** with a love for all things Biology. I have a first in **Biology** from the **University of Manchester**. I also taught parasitology at several universities in Myanmar. Currently I work for a science policy charity and as a freelance science journalist in my spare time.



- 1997** I was born in **Manchester, UK**
- 2014** I undertook a **Nuffield research internship** at The University of Manchester, School of Pharmacy
- 2015** I was a finalist for the **Young Scientist of the year at the National Science and Engineering Awards, UK**
- 2015-2019** I graduated from the University of Manchester with a 1st class degree in **BSc Biology (with Industrial/ Placement Year)**
- 2017-2018** I completed my placement year with **eTekkatho**, training to be a Problem Based Learning tutor, and teaching **Zoology/ Parasitology** at universities in Myanmar
- 2019-** I started my Masters in **Science Communication** at **Imperial College London**
- 2020** I started working for **The Foundation for Science and Technology**, a science policy charity, and became a freelance **Science Journalist**

PORTIA MCGHAN

I am a final year **PhD student** currently researching **Genetics** and **Molecular Medicine** at the **University of Edinburgh**. You can usually find me at work looking at cells down the microscope! I have also worked at a pharmaceutical company for a year and have my name on 3 scientific publications so far!



- 1995** I was born in the **United Kingdom**
- 2013-2017** I graduated from the **University of Leeds** with a 1st class degree in **BSc Biochemistry** with an Industrial Placement
- 2017** My first **scientific paper** published
- 2017-2021** I started my **PhD in Genetics and Molecular Medicine** at the **University of Edinburgh** researching gene regulation by enhancers
- 2018** My second **scientific paper** published
- 2019** I was awarded a scholarship to participate in the **Genetics Societies "Communicating your Science" workshop**
- 2019-2020** I was a **chair** of the institute of **Genetics and Molecular Medicine postgraduate society**
- 2019** My third **scientific paper** was published
- 2020** Started tutoring Biology for **Biology Olympiads**

JIAQI LI

I am a **medical student** passionate about Biology and research. I enjoy teaching and hope to spread the love for biology to the younger students. I am currently studying medicine at the **University of Cambridge**. Previously, I received a **Gold Medal** at the **27th IBO** in Vietnam, and was a **Jury Member** in the **28th IBO**. I am also an **Amgen Scholar** at **Karolinska Institutet**.



- 1998** I was born in **Singapore**
- 2015** I did a summer research internship at the **Massachusetts Institute of Technology** under the Research Science Institute (RSI) Programme organised by CEE
- 2016** **27th International Biology Olympiad**, Gold Medal
A*STAR Talent Search Singapore, Finalist
23rd International Conference for Young Scientists, Gold Medal, 1st Place
- 2017** Jury Member at the **28th International Biology Olympiad**
Started studying **Medicine** at the **University of Cambridge**
- 2017** Summer Research Intern, **University of Cambridge Physiology Department**
- 2019** I participated in the **Amgen Scholars' Programme** at **Karolinska Institutet**
I received the **Best Poster award**
- 2019-2020** Research Student at the **University of Cambridge Pathology Department**
President of the **Cambridge University Scientific Society**, Chair of the **Cambridge World Health Organisation (WHO) Simulation 2020**
President of the **Newnham College Medical and Veterinary Society**
- 2020** First Place (Best Poster) at **Cambridge University Oncology Society Annual Conference**

MEET OUR TUTORS

CHLOE NUNN



I am a British American **marine sustainability scientist** and **2018 National Geographic Explorer**. My research expertise ranges from deep-sea ecology to Arctic coastal resilience. I spent time in Cambodia, Greenland, and the North Atlantic Ocean as part of a research cruise. I am also an avid **science communicator** and I worked as a tutor for 3 years.

1995

I was born in the **USA**

2004

I started a **Worm Appreciation Society**



2013

International Math Modelling Competition, honorable mention



2016

Became a member of the **Institute of Marine Engineering, Science, and Technology**

2017

BSc Oceanography, University of Southampton
Academic Representative Award, University of Southampton
Ecological Modelling Summer School, University of Oldenburg

UNIVERSITY OF Southampton

2018

MSc Sustainability, University of Southampton
National Geographic Society Early Career Grant recipient
Volunteered on a three week **research cruise** in the North Atlantic collecting **acoustic biological data**



2019

Published **'Making Maps...Dolphin Style'** in Muse magazine (Cricket Media)
Became **Festival Coordinator** for the UK Polar Network

2020

Published **'Scavenging for Knowledge'** in Muse magazine (Cricket Media)
Reviewed the **Annual Report 6, Working Group 1, IPCC** draft as part of APECS)



ÖZGE ÖZKAYA



I hold an **MSc in Molecular Genetics** from the **University of Leicester** and a **PhD in Developmental Biology** from the **University of London**. I worked as a bench scientist for 6 years in the field of **neuroscience** at the **University of Leicester** before embarking on a career in **science communication**. I currently work as the managing editor of landing pages at **BioNews Services**, a leading online health, science and research publication company.

1978

I was born in **Turkey**

2000

Graduated from **Ankara University** with a first in Biology



2000-2001

MSc Molecular Genetics at the **University of Leicester**



2006

I obtained my **PhD** in **Developmental Genetics** from **Queen Mary University of London**



2006-2014

I worked as a **Postdoctoral Research Associate** at the **University of Leicester**

2014-2016

I worked as the **Research Communication Officer** at **Muscular Dystrophy UK**



2016-2020

Managing Editor of Landing Pages at **BioNews Services**



REGISTRATION & PAYMENTS

COURSE START DATES

OUR COURSES START ON A **ROLLING BASIS** SO YOU CAN APPLY **ANY TIME** OF THE YEAR. ONCE A GROUP OF **AT LEAST 5** STUDENTS IS GATHERED, THE COURSE STARTS.

REGISTRATION

TO REGISTER FOR THE COURSE, GO TO [HTTPS://BIOLYMPIADS.COM/BIOLYMPIADS-TRAINING-CAMPS/](https://biolympiads.com/biolympiads-training-camps/).

CAMP FEES

COURSE NAME	PRICE
INTRODUCTORY BIOLOGY OLYMPIAD TRAINING CAMP	\$1400.00
ADVANCED USABO TRAINING CAMP: PART 1	\$1200.00
ADVANCED USABO TRAINING CAMP: PART 2	\$1400.00

PAYMENT DETAILS

IF YOU WANT TO SIGN UP FOR THE TRAINING CAMP, YOU CAN MAKE A PAYMENT TO OUR TRANSFERWISE ACCOUNT FROM YOUR BANK:

ACCOUNT HOLDER: MARTYNA PETRULYTE

ACH ROUTING NUMBER: 026073150

WIRE ROUTING NUMBER: 026073008

ACCOUNT NUMBER: 8310815412

ACCOUNT TYPE: CHECKING

ADDRESS:

TRANSFERWISE

19 W 24TH STREET

NEW YORK NY 10010

UNITED STATES

PLEASE INCLUDE THE FULL NAME OF THE STUDENT!

ONCE YOU MAKE A PAYMENT, WE WILL ENROL A STUDENT INTO THE COURSE WITHIN THE NEXT 3 DAYS AND THE STUDENT WILL GET ACCESS TO THE COURSE LEARNING SYSTEM.

REFUNDS

IF DURING THE COURSE OF THE **FIRST 6 WEEKS** OF THE TRAINING PROGRAM, YOU WANT TO DROP THE COURSE, WE WILL REFUND THE REMAINING MONEY FOR THE CLASSES THAT THE STUDENT CANNOT ATTEND MINUS THE ADMINISTRATIVE FEE OF **\$70**.

IF YOU DECIDE TO QUIT THE COURSE FROM **WEEK 7** ONWARDS, **NO** REFUND WILL BE GIVEN.

**VISIT US:
WWW.BIOLYMPIADS.COM**

**EMAIL US:
MARTYNA@BIOLYMPIADS.COM**

**JOIN US:
WWW.FACEBOOK.COM/BIOLYMPIADS**

