THE OXFORD COLLEGE OF SCIENCE

Recognized by the Government of Karnataka, Permanently Affiliated to Bangalore University,
Approved by AICTE New Delhi, Accredited by NAAC with ‘A’ Grade in Cycle II & IAO Accredited by LSSSDDC,
Recognized by UGC under section 2(f) & 12(B), Supported by DST under FIST Program,
Recognized by GoK for BiSEP (Formerly BTFS)

THE OXFORD COLLEGE OF SCIENCE

Children’s Education Society

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THE OXFORD SCIENCE SKILL ENHANCEMENT CENTRE (TOSSEC)
OFFERS

**Workshops**

- SHORT AND LONG TERMINAL MODULES ON:
  - HPLC
  - FLUORESCENCE MICROSCOPE
  - BIOINFORMATICS
  - PCR
  - ANALYTICAL TOOLS IN PHARMACEUTICAL INDUSTRIES
  - ANIMAL CELL CULTURE

**Lectures Workshop Series**

- SERIES OF LECTURES ON:
  - ANALYTICAL TOOLS IN PHARMACEUTICAL INDUSTRIES
  - UPSTREAM PROCESS DEVELOPMENT
  - APPLICATIONS OF PCR IN THE INDUSTRY
  - FLUORESCENT MICROSCOPY IN DIAGNOSTICS
  - BIOINFORMATICS

**Projects**

- SHORT TERM & LONG TERM PROJECTS IN COMMERCIALLY VAILABLE AREAS:
  - PHYTOCOMPUND CHARACTERIZATION
  - INDUSTRIAL ENZYMES
  - FOOD TECHNOLOGY
  - NEURO TOXICOLOGY

**MOOC**

- MASSIVE OPEN ONLINE COURSES ON:
  - MASS SPECTROMETRY APPLICATIONS
  - TRANSMISSION ELECTRON MICROSCOPY IN DIAGNOSTICS
  - HPLC & IT’S APPLICATIONS
  - FLUORESCENT MICROSCOPY IN DIAGNOSTICS
  - TISSUE ENGINEERING & IT’S APPLICATIONS

**Bio-Skillathon On:**

- MICROBIOLOGICAL SKILLS
- ANALYTICAL TECHNIQUE SKILLS
- BIOCHEMISTRY SKILLS
- BIOINFORMATICS SKILLS
- CELL & TISSUE CULTURE SKILLS
- MICROSCOPIC SKILLS

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- CELL & TISSUE CULTURE SKILLS
- MICROSCOPIC SKILLS

Workshop batches are conducted throughout the year based on student strength & requests. For requests & queries, contact the co-ordinators.

**For further details contact:**

- Dr. Kavyashree R, Principal, Professor and Head, TOSSEC Director.
- Dr. Nirmala Nair, Associate Professor, BiSEP Faculty, TOSSEC Co-ordinator.
- Dr. Kavisa Ghosh, Assistant Professor, TOSSEC Co-ordinator.
- Dr. Mausam Ghosh, Associate Professor, TOSSEC Co-ordinator.

**Venue:**
The Oxford Science Skill Enhancement Centre (TOSSEC), Department of Biotechnology, The Oxford College of Science, Sector IV, HSR Layout, Bengaluru: 560 102, Karnataka, India.

**Mobile No.:** +91 7502699517
**Landline No.:** 080 61754413/548/542
**E-mail id:** oxfordscience.tossec@gmail.com
WORKSHOPS: SHORT AND LONG TERM MODULES

Short term module (Two days)
- Basic theory of chromatography and classification of HPLC
- RP HPLC dry demo (parts, function & applications)
- Practical demonstration of RP HPLC and mobile phase preparation
- Method development & validation, and troubleshooting

Short term module (Two days)
- Fluorescent microscopy- overview & safety instructions
- Focusing the slides
- Capturing images and processing
- Post analysis waste and hazard management

Short term module (Two days)
- Exploring nucleotide & protein databases- GENBANK & UNIPORT; Multiple sequence alignment
- Protein search using BLAST & computing phylogenetic tree
- Protein secondary structure prediction by PSIRED

Short term module (Two days)
- Introduction to DNA, RNA & proteins
- Recombinant DNA technology; PCR – overview & types
- PCR application in diagnostics and industry
- PCR laboratory demonstration

Short term module (Two days)
- Introduction to quality control (methods & approaches)
- Good laboratory, manufacturing & documentation practices
- Laboratory demonstration of quality control methods & instrument handling

Short term module (Two days)
Introduction to animal cell culture and its applications; Basic requirements for animal cell culture laboratory; Introduction to types of cell cultures, cell lines, culture growth media & selection; Media replacement & sub-culturing; Cell viability test & cell counting; Cytotoxicity assessment for test compounds

Long term module (Two days)
- Fluorescent microscopy- the journey of a cell from bench to book; Hands on training on fixing and staining cells
- Probing cells with fluorescent antibody and mounting on slide
- Visualization of cells, capturing and processing of image

Long term module (Two days)
- Exploring nucleotide & protein databases; RCSB & PDB; Pairwise sequence alignment by dynamic programming, EMBODESS; Database search for similar protein sequences-BLAST PSI; Multiple sequence alignment & phylogenetic analysis; Derivation of restriction mapping in a DNA sequence; Open reading frame- NCBI/EXPASY; Primer designing for PCR; Molecular docking- Patch docking method.

Long term module (Two days)
- PCR-Basic principle, types
- Primer design and rules governing primer designing; PCR applications in recombinant DNA technology, site directed mutagenesis, diagnostics, industry and forensics; PCR experimental design, result analysis & trouble shooting

Long term module (Two days)
- Introduction to quality control- methods & approaches
- Good laboratory, manufacturing & documentation practices; Microbiological, spectroscopic, electrophoretic, chromatographic & immunological methods;

Long term module (Two days)
Introduction to animal cell culture and its applications; Basic requirements; Media replacement & sub-culturing; Troubleshooting; cell counting; Cell viability & cytotoxicity assessment for test compounds; Cell-based assays: assessment of ROS, mitochondrial membrane potential & apoptotic morphological changes

Workshop batches are conducted throughout the year based on student strength & requests. For requests, queries & program fees contact the co-ordinators.

- The registration fees range from Rs. 2,500/- to Rs. 10,000/-, and the mode of payments are:
  - DD in favor of “Principal, The Oxford College of Science, payable at Bangalore” (kindly mention your name, address and phone No. behind the demand draft)
  - NEFT, RTGS/IMPS to the Bank account No. 140501011002766, Name: Jnanarjana, Type: Savings, IFSC Code: VIJB0001405
  - Cash at Examination fees counter.