Xcellogen Biotech Internship Application Form
Chackai,Thiruvananthapuram,Kerala 695024
+91 94488461637, +91 89217 28016
xcellogenbiotech@gmail.com, sales@xcellogenbiotech.com

Personal Information:

- ❖ Full Name:
- ❖ Date of Birth:
- ❖ Gender:
- ❖ Contact Number:
- ❖ Email Address:
- ❖ Address:

Education Details

- ❖ Highest Qualification:
- ❖ Institution/University:
- ❖ Year of Passing:

Professional Experience:

- ❖ Previous Company/Organization:
- ❖ Position/Designation:
- ❖ Duration of Employment:

Modules Selection:

Module 1: Microbiology

This 30-day Microbiology module at Xcellogen Biotech is designed to provide participants with a comprehensive understanding of key concepts, techniques, and applications in the field of microbiology. Through a blend of theoretical lectures, practical laboratory sessions, and interactive discussions, participants will gain hands-on experience and insights into various aspects of microbiology, including microbial diversity, pathogenesis, microbial genetics, and biotechnological applications.

Week 1: Introduction to Microbiology
- Day 1: Introduction to Microbiology and History of Microbiology
- Day 2: Microbial Cell Structure and Function
- Day 3: Microbial Growth and Nutrition
- Day 4: Microbial Metabolism
- Day 5: Microbial Genetics

Week 2: Microbial Diversity and Classification
- Day 6: Bacterial Diversity and Classification
- Day 7: Viral Diversity and Classification
- Day 8: Fungal Diversity and Classification
- Day 9: Protozoan Diversity and Classification
- Day 10: Archaeal Diversity and Classification

Week 3: Microbial Pathogenesis and Host-Pathogen Interactions
- Day 11: Host-Microbe Interactions
- Day 12: Mechanisms of Microbial Pathogenesis
- Day 13: Immune Response to Microbial Infections
- Day 14: Epidemiology and Control of Infectious Diseases
- Day 15: Antimicrobial Agents and Resistance

Week 4: Applied Microbiology and Biotechnological Applications
- Day 16: Industrial Microbiology
- Day 17: Food Microbiology and Safety
- Day 18: Environmental Microbiology
- Day 19: Microbial Biotechnology and Genetic Engineering
- Day 20: Pharmaceutical Microbiology and Drug Development

Week 5: Advanced Topics and Case Studies
- Day 21: Microbial Ecology and Symbiosis
- Day 22: Bioinformatics in Microbiology
- Day 23: Emerging Infectious Diseases
- Day 24: Microbial Biofilms and Quorum Sensing
- Day 25: Microbiome Analysis and Applications

Week 6: Laboratory Techniques and Practical Applications
- Day 26: Aseptic Techniques and Sterilization
- Day 27: Culture Media Preparation and Microbial Isolation
- Day 28: Microscopic Examination of Microorganisms
- Day 29: Microbial Identification Methods
- Day 30: Hands-on Project: Microbial Growth and Characterization

Module Conclusion and Assessment:
At the end of the 30-day Microbiology module, participants will be evaluated through a combination of quizzes, assignments, and a final project presentation. A certificate of completion will be awarded to participants who successfully demonstrate understanding and proficiency in key microbiological concepts and techniques.

Note: The module structure and topics can be tailored according to the specific requirements and objectives of Xcellogen Biotech and its participants.

Price: 13000 INR

Module 2: Molecular Biology

Module Overview:
This 30-day Molecular Biology module at Xcellogen Biotech is designed to provide participants with a deep understanding of fundamental principles, techniques, and applications in molecular biology. Through a combination of theoretical lectures, hands-on laboratory sessions, and interactive discussions, participants will gain practical skills and knowledge essential for research and industry in the field of molecular biology.

Module Structure:

Week 1: Introduction to Molecular Biology
- Day 1: Introduction to Molecular Biology and Central Dogma
- Day 2: DNA Structure and Function
- Day 3: DNA Replication
- Day 4: Transcription
- Day 5: Translation and Genetic Code

Week 2: Recombinant DNA Technology
- Day 6: Restriction Enzymes and DNA Cloning
- Day 7: Plasmid and Vector Design
- Day 8: Polymerase Chain Reaction (PCR)

- Day 9: DNA Sequencing Techniques
- Day 10: Gene Expression Systems

Week 3: Molecular Genetics and Genomics
- Day 11: Gene Regulation and Gene Expression Analysis
- Day 12: Genome Structure and Organization
- Day 13: Functional Genomics and Proteomics
- Day 14: DNA Mutations and Repair Mechanisms
- Day 15: Epigenetics and Chromatin Structure

Week 4: Advanced Molecular Biology Techniques
- Day 16: Site-Directed Mutagenesis
- Day 17: RNA Interference (RNAi) and Gene Silencing
- Day 18: CRISPR-Cas9 Technology and Genome Editing
- Day 19: Molecular Cloning and Protein Expression
- Day 20: Transgenic Organisms and Applications

Week 5: Applied Molecular Biology
- Day 21: Molecular Diagnostics and Medical Applications
- Day 22: Molecular Markers in Plant and Animal Breeding
- Day 23: Molecular Epidemiology and Infectious Disease Diagnosis
- Day 24: Molecular Evolution and Phylogenetics
- Day 25: Molecular Biology in Drug Discovery and Development

Week 6: Laboratory Techniques and Practical Applications
- Day 26: DNA Extraction and Purification Methods
- Day 27: Gel Electrophoresis and Nucleic Acid Analysis
- Day 28: Molecular Cloning Techniques
- Day 29: Protein Purification and Analysis
- Day 30: Hands-on Project: Design and Execution of a Molecular Biology Experiment

Module Conclusion and Assessment:
At the conclusion of the 30-day Molecular Biology module, participants will undergo assessments including quizzes, laboratory reports, and a final project presentation. A

certificate of completion will be awarded to participants who demonstrate proficiency in molecular biology techniques and concepts.

Price: 18000 INR

Module 3: Phytochemistry

Module Overview:
This 30-day Phytochemistry module at Xcellogen Biotech aims to provide participants with a comprehensive understanding of the chemical composition of plants, their secondary metabolites, and their potential applications in various industries including pharmaceuticals, agriculture, and cosmetics. Through a blend of theoretical lectures, practical laboratory sessions, and interactive discussions, participants will gain insights into phytochemical analysis techniques, bioactivity assessment, and natural product isolation and characterization.

Module Structure:

Week 1: Introduction to Phytochemistry
- Day 1: Introduction to Phytochemistry and its Importance
- Day 2: Chemical Composition of Plants
- Day 3: Biosynthesis of Plant Secondary Metabolites
- Day 4: Classification of Plant Secondary Metabolites
- Day 5: Methods of Phytochemical Analysis

Week 2: Extraction and Isolation of Phytochemicals
- Day 6: Extraction Techniques: Solvent Extraction, Soxhlet Extraction
- Day 7: Chromatographic Techniques: Thin-Layer Chromatography (TLC), Column Chromatography
- Day 8: High-Performance Liquid Chromatography (HPLC)
- Day 9: Gas Chromatography-Mass Spectrometry (GC-MS)
- Day 10: Nuclear Magnetic Resonance (NMR) Spectroscopy

Week 3: Bioactivity Assessment of Phytochemicals

- Day 11: Antioxidant Activity Assays
- Day 12: Antimicrobial Activity Assays
- Day 13: Cytotoxicity and Cell Viability Assays
- Day 14: Enzyme Inhibition Assays
- Day 15: Bioassay-Guided Fractionation

Week 4: Pharmacological and Industrial Applications
- Day 16: Phytochemicals in Drug Discovery and Development
- Day 17: Phytochemicals in Traditional Medicine
- Day 18: Phytochemicals in Agriculture: Plant Growth Promoters, Pesticides
- Day 19: Phytochemicals in Cosmetics and Personal Care Products
- Day 20: Phytochemicals as Nutraceuticals and Functional Foods

Week 5: Advanced Topics in Phytochemistry
- Day 21: Isolation and Characterization of Bioactive Compounds
- Day 22: Structural Elucidation Techniques: Mass Spectrometry, NMR Spectroscopy
- Day 23: Metabolomics and Metabolic Profiling
- Day 24: Phytochemistry and Plant-Environment Interactions
- Day 25: Phytochemistry and Biodiversity Conservation

Week 6: Laboratory Techniques and Practical Applications
- Day 26: Extraction and Isolation of Phytochemicals from Plant Material
- Day 27: Phytochemical Analysis Using Chromatographic Techniques
- Day 28: Bioactivity Assays of Phytochemical Extracts
- Day 29: Structure Elucidation of Phytochemicals Using Spectroscopic Techniques
- Day 30: Hands-on Project: Phytochemical Analysis and Bioactivity Screening of a Plant Extract

Module Conclusion and Assessment:
At the conclusion of the 30-day Phytochemistry module, participants will be assessed through quizzes, laboratory reports, and a final project presentation. A certificate of completion will be awarded to participants who demonstrate proficiency in phytochemical analysis techniques and their applications.

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**Note: ** The module structure and topics can be adjusted based on the specific requirements and objectives of Xcellogen Biotech and its participants.

Price: 15000 INR

Module 4: Animal Cell Culture

Module Overview:
The 30-day Animal Cell Culture Training Program at Xcellogen Biotech aims to provide participants with comprehensive theoretical knowledge and practical skills in animal cell culture techniques. Participants will learn the fundamentals of cell culture, including media preparation, cell line maintenance, passaging, cryopreservation, and cell-based assays. Through hands-on training and interactive sessions, participants will gain the expertise required for successful execution of cell culture experiments in research and biotechnology industries.

Module Objectives:
1. To understand the principles of animal cell culture.
2. To master techniques for media preparation and sterilization.
3. To learn proper cell culture maintenance and passaging methods.
4. To acquire skills in cryopreservation and revival of cell lines.
5. To gain proficiency in performing cell-based assays.
6. To ensure adherence to quality control and biosafety guidelines in cell culture practices.

Module Outline:

Day 1-3: Introduction to Animal Cell Culture
- Overview of cell culture techniques
- Importance of cell culture in research and biotechnology
- Basic cell biology principles
- Laboratory safety and aseptic techniques

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Day 4-7: Media Preparation and Sterilization
- Types of cell culture media and supplements
- Formulation and preparation of basal and complete media
- Sterilization techniques: filtration, autoclaving, and aseptic handling
- Quality control of media components

Day 8-12: Cell Line Maintenance and Passaging
- Selection of cell lines for specific applications
- Cell culture vessel selection and preparation
- Techniques for cell seeding and passaging
- Monitoring cell growth and viability

Day 13-17: Cryopreservation Techniques
- Principles of cryopreservation
- Cryoprotectants and freezing protocols
- Preparation of cryovials and labeling
- Thawing and revival of frozen cell lines

Day 18-22: Cell-Based Assays
- Introduction to cell-based assays
- Cell proliferation and viability assays
- Cell migration and invasion assays
- Immunocytochemistry and fluorescence microscopy

Day 23-27: Quality Control and Biosafety
- Importance of quality control in cell culture
- Good cell culture practices (GCCP)
- Biosafety guidelines and containment measures
- Contamination prevention and troubleshooting

Day 28-30: Practical Sessions and Assessment
- Hands-on practice sessions in cell culture techniques
- Performance evaluation through practical assessments
- Final examination covering theoretical and practical aspects
- Certificate presentation to successful participants

Module Conclusion:
The 30-Day Animal Cell Culture Training Program equips participants with the essential knowledge and skills to proficiently perform animal cell culture experiments. By the end of the program, participants will be capable of independently conducting cell culture-based research and contributing to advancements in various fields of life sciences and biotechnology.

Price: 25000 INR

Module 5: Forensic Molecular Biology

Overview:
The 30-Day Forensic Molecular Biology Module at Xcellogen Biotech offers an immersive learning experience in the field of forensic science, focusing on molecular biology techniques and their applications in solving crimes. This module is designed to provide participants with comprehensive knowledge and hands-on skills necessary to work effectively in forensic laboratories.

Module Structure:
Day 1-2: Introduction to Forensic Science
- Overview of forensic science and its significance in criminal investigations
- Historical development and milestones in forensic science
- Introduction to molecular biology techniques in forensics

Day 3-5: DNA Extraction and Quantification
- Principles of DNA extraction from various sample types (blood, saliva, hair, etc.)
- Hands-on practice in DNA extraction protocols
- Quantification of extracted DNA using spectrophotometry and/or fluorometry

Day 6-8: PCR Amplification and STR Analysis
- Polymerase Chain Reaction (PCR) principles and applications in forensics
- STR (Short Tandem Repeat) analysis: theory and methodology
- Amplification of target DNA regions using PCR
- Analysis of PCR products using gel electrophoresis

Day 9-12: DNA Sequencing and Analysis
- Introduction to DNA sequencing techniques (Sanger sequencing, Next-Generation Sequencing)
- Hands-on practice in DNA sequencing using Sanger sequencing platforms
- Sequence analysis and interpretation using bioinformatics tools

Day 13-15: Forensic Serology and Bloodstain Analysis
- Serological techniques for blood typing and identification
- Analysis of bloodstains: pattern recognition and interpretation
- Practical exercises in bloodstain pattern analysis

Day 16-18: Forensic DNA Profiling and Database Management
- Principles of DNA profiling and its applications in forensic investigations
- Hands-on training in DNA profiling techniques (e.g., STR analysis)
- Database management and interpretation of DNA profiles

Day 19-22: Forensic Genetics and Paternity Testing
- Basics of forensic genetics: Mendelian inheritance, population genetics
- Principles and procedures of paternity testing
- Practical exercises in paternity testing using DNA analysis

Day 23-26: Forensic Toxicology and Drug Analysis
- Introduction to forensic toxicology and its role in criminal investigations
- Techniques for detecting drugs and toxins in biological samples
- Hands-on practice in drug analysis using chromatography and mass spectrometry

Day 27-29: Case Studies and Mock Crime Scene Investigations
- Analysis of real-life forensic cases
- Simulation of crime scene investigations and evidence collection
- Role-playing exercises to simulate forensic analysis and reporting

Day 30: Final Assessment and Certification
- Comprehensive examination covering all aspects of the module
- Evaluation of practical skills through hands-on assessments
- Presentation of certificates to successful participants

Conclusion:
The 30-Day Forensic Molecular Biology Module at Xcellogen Biotech offers a rigorous and practical training program for individuals interested in pursuing a career in forensic science. Through a combination of theoretical knowledge and hands-on experience, participants will develop the skills necessary to contribute effectively to forensic investigations and uphold the principles of justice and integrity.

Price: 16000 INR

Module 6: Food Microbiology

Objective: To provide comprehensive knowledge and practical skills in food microbiology, emphasizing the importance of microbiological safety and quality in the food industry.

-Day 1-5: Introduction to Food Microbiology
- Day 1: Overview of Food Microbiology and its significance in food safety.
- Day 2: Basics of Microbial Growth: Factors affecting growth (temperature, pH, water activity).
- Day 3: Common Microorganisms in Food: Bacteria, yeast, molds, viruses.
- Day 4: Food Spoilage: Causes, types, and identification.
- Day 5: Foodborne Illnesses: Understanding pathogens and their transmission routes.

Day 6-10: Microbial Control in Food
- Day 6:Principles of Food Preservation: Heat, cold, dehydration, chemical preservatives.
- Day 7:HACCP (Hazard Analysis and Critical Control Points) in Food Safety.
- Day 8: Sanitation and Hygiene Practices in Food Processing.
- Day 9: Food Packaging and its role in microbial control.
- Day 10: Emerging Technologies in Food Preservation: High-pressure processing, irradiation, etc.

-Day 11-15: Methods in Food Microbiology
- Day 11: Sampling Techniques in Food Microbiology.
- Day 12: Culture Media and Methods for Microbial Isolation.

- Day 13: Microscopic Techniques: Staining, microscopy.
- Day 14: Molecular Methods: PCR (Polymerase Chain Reaction), ELISA (Enzyme-Linked Immunosorbent Assay).
- Day 15: Rapid Methods for Microbial Detection and Enumeration.

-Day 16-20: Foodborne Pathogens
- Day 16: Salmonella: Epidemiology, detection, and control.
- Day 17:Escherichia coli (E. coli): Pathogenic strains, detection methods.
- Day 18: Listeria monocytogenes: Characteristics, risk factors, control strategies.
- Day 19:Campylobacter jejuni: Source, symptoms, prevention.
- Day 20: Vibrio species: Vibrio cholerae, Vibrio parahaemolyticus, etc.

Day 21-25: Food Quality Assurance
- Day 21:Quality Parameters in Food: Texture, color, flavor.
- Day 22: Sensory Evaluation Techniques.
- Day 23: Shelf-Life Determination: Factors affecting shelf life, methods of determination.
- Day 24: Good Manufacturing Practices (GMP) in Food Industry.
- Day 25: ISO Standards and Certifications in Food Industry.

Day 26-30: Case Studies and Practical Applications
- Day 26-28: Case Studies: Real-life examples of foodborne outbreaks, their investigation, and resolution.
- Day 29: Practical Lab Sessions: Microbial analysis of food samples, interpretation of results.

- Day 30: Final Assessment and Review: Examining key concepts learned throughout the module.

Note: Each day includes a mix of theoretical lectures, interactive discussions, practical demonstrations, and assignments to reinforce learning.

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This module provides a structured approach to understanding food microbiology, covering essential theoretical knowledge along with practical skills necessary for working in the food industry, specifically at Xcellogen Biotech.

Price: 15000 INR

Tentative Date of Joining:

Accommodation Need:

Module Selected:

Payment Details:
Xcellogen Biotech India Pvt Ltd 6688198721
IDIB000T140
INDIAN BANK
UPI : 919488461637@indianbnk
GPay : +91 9790537961

*Registrations before one month of joining will be preferred

Payment Reference No:

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Declaration:
I hereby declare that all the information provided above is true to the best of my knowledge.

Signature
Date

If you need further assistance with the specific modules and pricing feel free contact us on +91 9488461637, sales@xcellogenbiotech.com