



**Dr. Omics** Labs  
The Doctor of your DNA

# DRUG DESIGN MASTERY

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A 2-Month Research  
Expedition in CADD

[WWW.DROMICSLABS.COM](http://WWW.DROMICSLABS.COM)

# YOUR GO TO

## With Dr.Omics Labs

### COMPREHENSIVE AND SPECIALIZED TRAINING

- MODULES COVERING KEY AREAS OF COMPUTATIONAL RESEARCH.
- HIGHLY PROFESSIONAL COURSES FOR COMPUTER AIDED DRUG DESIGNING TECHNIQUES & PROGRAMMING FROM BASICS.



### EXPOSURE TO INDUSTRY PRACTICES AND INSIGHTS INTO THE COMMERCIAL ASPECTS OF BIOTECH RESEARCH

- AN INDUSTRIAL LEVEL COURSE DESIGN.
- COVERING EVERY TOPIC REQUIRED FOR COMPUTATIONAL DRUG DESIGNING & PROVIDING HANDS-ON PRACTICE DURING SESSION



### MENTORSHIP FROM INDUSTRY EXPERTS AND RENOWNED RESEARCHERS.

- LIVE LEARNING WITH HANDS-ON PRACTICAL EXPERIENCE, UNDERSTANDING USAGE OF BIOINFORMATICS DATABASES IN REAL-TIME.
- IDENTIFY DRUG TARGETS, ANALYZE MOLECULAR DOCKING AND BINDING MODES, INVESTIGATE DRUG REPOSITIONING AND DESIGN NEW DRUGS.



### NETWORKING

- OPPORTUNITY TO CONNECT WITH PEERS, INDUSTRY PROFESSIONALS, AND POTENTIAL COLLABORATORS.
- A COLLABORATIVE AND INTERACTIVE LEARNING ENVIRONMENT THAT FOSTERS CREATIVITY AND INNOVATION.



## CADD: Research Oriented Course

"Explore the forefront of proteomics and bioinformatics with our CADD Research Oriented Course at Dr.Omics Labs. Gain hands-on expertise in drug designing techniques and MD Simulation, propelling your career or research to new heights in the field of proteomics."



*Important tip*

"Select a topic that really interests you and join our research-oriented course made for passionate learners. Our flexible schedule is made to fit your time."

### **A 6-Month CADD Research Journey:**

A CADD (Computer-Aided Drug Design) research-oriented course offers a comprehensive exploration of computational methods used in drug discovery. Students delve into molecular modeling, ligand-receptor interactions, and virtual screening, equipping them with valuable skills to contribute to pharmaceutical research. This course fosters a deep understanding of the intersection between chemistry, biology, and cutting-edge computational tools.

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# Coursework Overview



**1.** Computer Aided Drug Designing (CADD)

OR

**2.** Machine Learning in Drug Designing



**3.** Small Project CADD 15 days





# **MODULE 1:**

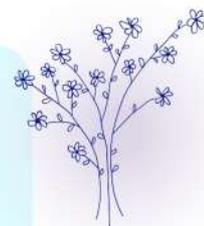
## **COMPUTER AIDED DRUG DESIGN (CADD)**

- **Introduction to Drug Discovery and Computer Aided Drug Design**
  - Overview of drug discovery process
  - Role of computational methods
  - Hands-on: Introduction to ChemDraw or ChemSketch for chemical structure visualization.
- **Molecular Biology Fundamentals for Drug Design**
  - Biomolecules and their properties
  - Structure of proteins and ligands
  - Hands-on: Utilize PyMOL or Swiss PdbViewer for protein structure visualization.
- **Molecular Modeling Techniques**
  - Molecular visualization tools
  - Molecular mechanics and dynamics simulations
  - Hands-on: Use PyMOL, UCSF Chimera, or VMD for molecular visualization.
- **Chemical Informatics and Virtual Screening**
  - Chemical databases and data mining
  - Ligand and structure-based virtual screening
  - Hands-on: Explore tools like PubChem for chemical data and Autodock Vina for virtual screening



## MODULE 2:

# MACHINE LEARNING IN DRUG DESIGN



- **Introduction to Machine Learning**
  - Basics of machine learning
  - Supervised, unsupervised, and reinforcement learning
  - Hands-on: Learn the basics with the scikit-learn library in Python.
- **Data Preprocessing for Drug Design**
  - Data cleaning and feature selection
  - Handling molecular data
  - Hands-on: Use Pandas and NumPy for data preprocessing.
- **Machine Learning Models for Drug Design**
  - Regression and classification algorithms
  - Deep learning in drug discovery
  - Hands-on: Implement machine learning models using scikit-learn and TensorFlow/Keras.
- **Applications of Machine Learning in Drug Design**
  - Predicting drug-target interactions
  - QSAR modeling
  - Hands-on: Apply machine learning to real datasets with RDKit and Cheminformatics.
- **Drug Optimization and Lead Identification**
  - Structure-activity relationship (SAR) analysis
  - De novo drug design using ML
  - Hands-on: Use RDKit for SAR analysis and explore de novo design tools





## *Program Structure*

- Duration: 2 months
- Coursework: 1.5 months
- Project: 15 Days

## **Gain expertise in CADD techniques**

### **1.5 Months of In-Depth Learning**

- Molecular modeling
- Virtual screening
- Drug-target interaction analysis
- Pharmacokinetics and pharmacodynamics

### **15 Days of Small Project**

- Collaborate on a cutting-edge research project.
  - Apply acquired skills to solve industry challenges.
  - Gain hands-on experience with CADD.
  - Work closely with mentors and industry professionals.
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## **FREQUENTLY ASKED QUESTIONS**

**Q: Are these courses suitable for those new to the field without prior experience?**

A: Yes, our courses are designed to cater to beginners with no prior experience in the field. We provide foundational content suitable for all skill levels.

**Q: Will I receive a certification upon completing the course?**

A: Absolutely, a digital certificate will be awarded upon course completion. You'll receive this certificate via email.

**Q: Do the courses include practical projects and research opportunities?**

A: Certainly, our courses incorporate practical projects and research opportunities to ensure hands-on learning and the practical application of acquired knowledge.

**Q: Can I access class recordings if I miss a class?**

A: Yes, class recordings are available. We'll send you the recording link via email if you miss a class, typically on the day following the live session.

**Q: Can I continue to access course materials and resources after finishing the course?**

A: Absolutely, you'll retain access to course materials and resources even after completing the course. These materials will be shared with you via email or WhatsApp.

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## **TERMS AND CONDITIONS**

- Maintaining Discipline during the Tenure.
  - It is mandatory to maintain 85% attendance for all students.
  - Students must maintain an average 'A2' grade throughout their training period.
  - Project completion is a must for research.
  - Publication Students must Participate actively in the Project group
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Need more insight & support?

# CONTACT US!



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*Thank you!*



**Dr. Omics Labs**  
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OUR CERTIFICATIONS & GRANTS

