## Advanced Focused Areas for Interns in Drug Designing Internships

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1. **Introduction to Drug Designing Topics**

   Provides an overview of drug designing, including the principles, methodologies, and significance in pharmaceutical development.

2. **Structure-Based Drug Design Topics**

   Focuses on the design of drugs based on the 3D structure of biological targets, including techniques like X-ray crystallography and molecular modeling.

3. **Ligand-Based Drug Design Topics**

   Studies the use of known ligands to design new drugs, including techniques such as pharmacophore modeling and QSAR analysis.

4. **Computational Drug Designing Topics**

   Focuses on the use of computational tools in drug design, including molecular modeling, virtual screening, and predictive modeling.

5. **High-Throughput Screening in Drug Design Topics**

   Studies the use of high-throughput screening (HTS) techniques in drug discovery, including the identification of lead compounds and the optimization of drug candidates.

6. **Quantitative Structure-Activity Relationship (QSAR) Topics**

   Focuses on the development of QSAR models to predict the biological activity of

compounds based on their chemical structure.

7. **Molecular Docking Techniques Topics**

Studies the principles and applications of molecular docking in drug design, including the prediction of binding modes and affinities of drug candidates.

8. **Pharmacophore Modeling Topics**

Focuses on the creation of pharmacophore models to identify the essential features of molecules that interact with specific biological targets.

9. **Virtual Screening in Drug Discovery Topics**

Studies the use of virtual screening techniques to identify potential drug candidates from large chemical libraries.

10. **Lead Compound Optimization Topics**

Focuses on the optimization of lead compounds in drug design, including structure-activity relationship (SAR) studies and the improvement of drug-like properties.

11. **Drug-Target Interaction Studies Topics**

Studies the interactions between drugs and their biological targets, including binding studies, receptor-ligand interactions, and the development of target-specific drugs.

12. **Drug Metabolism and Pharmacokinetics (DMPK) Topics**

Focuses on the study of drug metabolism and pharmacokinetics (DMPK), including the prediction and optimization of ADME (absorption, distribution, metabolism, excretion) properties.

13. **Rational Drug Design Topics**

Studies the use of rational drug design approaches, including the design of drugs based on the understanding of disease mechanisms and target structures.

14. **Biologics in Drug Design Topics**

Focuses on the design and development of biologic drugs, including monoclonal antibodies, peptides, and recombinant proteins.

15. **Fragment-Based Drug Design Topics**

Studies the use of fragment-based approaches in drug design, including the identification of small fragments that bind to targets and their subsequent optimization into drug candidates.

16. **Computational Chemistry in Drug Design Topics**

Focuses on the application of computational chemistry techniques in drug design, including molecular dynamics, quantum mechanics, and cheminformatics.

17. **Protein-Ligand Binding Studies Topics**

Studies the interactions between proteins and ligands in drug design, including the use of techniques like SPR, ITC, and crystallography to study binding affinities and kinetics.

18. **In Silico Drug Design Topics**

Focuses on the use of in silico methods in drug design, including computer-aided drug design (CADD) and the use of predictive models to identify potential drug candidates.

19. **Drug Design for Rare Diseases Topics**

Studies the challenges and strategies involved in designing drugs for rare and orphan diseases, including the identification of suitable targets and the development of personalized therapies.

20. **Peptidomimetics in Drug Design Topics**

Focuses on the design and development of peptidomimetics, including the modification of peptides to enhance stability, bioavailability, and target specificity.

21. **Structure-Based Pharmacophore Modeling Topics**

Studies the use of structure-based pharmacophore modeling in drug design, including the identification of key interactions and the optimization of pharmacophore features.

22. **Drug Design and Toxicology Studies Topics**

Focuses on the integration of toxicology studies in drug design, including the prediction of potential toxic effects and the design of safer drug candidates.

23. **Drug Design and Drug Delivery Systems Topics**

Studies the design of drug delivery systems, including the development of targeted delivery methods, sustained-release formulations, and nanoparticle-based delivery systems.

24. **Multi-Target Drug Design Topics**

Focuses on the design of drugs that can interact with multiple targets, including the development of polypharmacology strategies and the identification of multi-target compounds.

25. **Machine Learning in Drug Design Topics**

Studies the application of machine learning in drug design, including the use of algorithms to predict drug-target interactions, optimize lead compounds, and identify novel drug candidates.

26. **Antibody Drug Design Topics**

Focuses on the design and development of antibody-based drugs, including monoclonal antibodies, bispecific antibodies, and antibody-drug conjugates.

27. **Nanotechnology in Drug Design Topics**

Studies the use of nanotechnology in drug design, including the development of nanoscale drug delivery systems, nanoparticle-based therapies, and the use of nanomaterials in drug formulation.

28. **Artificial Intelligence in Drug Design Topics**

Focuses on the use of artificial intelligence (AI) in drug design, including the development of AI-driven drug discovery platforms, predictive modeling, and the identification of druggable targets.

29. **Computer-Aided Drug Design (CADD) Topics**

Studies the use of computer-aided drug design (CADD) techniques, including molecular modeling, virtual screening, and structure-based drug design.

30. **Drug Repurposing Strategies Topics**

Focuses on the strategies for repurposing existing drugs for new therapeutic indications, including the identification of new targets, screening of existing drugs, and the development of combination therapies.

31. **Personalized Medicine and Drug Design Topics**

Studies the role of drug design in personalized medicine, including the development of drugs tailored to individual genetic profiles, biomarkers, and disease characteristics.

32. **Small Molecule Drug Design Topics**

Focuses on the design and development of small molecule drugs, including the identification of lead compounds, optimization of drug-like properties, and the design of target-specific inhibitors.

33. **Drug Design for Neurodegenerative Diseases Topics**

Studies the challenges and strategies involved in designing drugs for neurodegenerative

diseases, including Alzheimer's, Parkinson's, and Huntington's diseases.

34. **Advancements in Drug Design Technologies Topics**

Focuses on the latest advancements in drug design technologies, including new computational tools, high-throughput screening methods, and innovative drug delivery systems.

35. **Drug Design and Gene Therapy Topics**

Studies the intersection of drug design and gene therapy, including the development of drugs that target genetic mutations, the design of gene editing tools, and the integration of drug and gene therapies.

36. **Drug Design for Cancer Therapy Topics**

Focuses on the design of drugs for cancer therapy, including the development of targeted therapies, immunotherapies, and combination therapies for various types of cancer.

37. **Computational Biology in Drug Design Topics**

Studies the role of computational biology in drug design, including the modeling of biological systems, the simulation of drug-target interactions, and the analysis of genomic data for drug discovery.

38. **Epigenetics in Drug Design Topics**

Focuses on the role of epigenetics in drug design, including the development of drugs that target epigenetic modifications, the study of epigenetic biomarkers, and the integration of epigenetics into personalized medicine.

39. **High-Content Screening in Drug Discovery Topics**

Studies the use of high-content screening (HCS) techniques in drug discovery, including the automated analysis of cellular phenotypes, the identification of drug targets, and the optimization of lead compounds.

40. **Computational Predictive Models in Drug Design Topics**

Focuses on the development and use of computational predictive models in drug design, including the prediction of drug-target interactions, the simulation of pharmacokinetics, and the optimization of drug properties.

41. **Molecular Dynamics in Drug Design Topics**

Studies the application of molecular dynamics simulations in drug design, including the analysis of protein-ligand interactions, the prediction of binding affinities, and the exploration of conformational changes in drug targets.

42. **Drug Design for Antiviral Therapies Topics**

   Focuses on the design of drugs for antiviral therapies, including the development of inhibitors for viral enzymes, the design of small molecules that block viral entry, and the optimization of drug combinations for antiviral treatment.

43. **Computational Drug Screening Topics**

   Studies the use of computational screening techniques in drug discovery, including virtual screening, molecular docking, and the identification of potential drug candidates from large chemical libraries.

44. **Drug Design for Inflammatory Diseases Topics**

   Focuses on the design of drugs for inflammatory diseases, including the development of anti-inflammatory agents, the targeting of specific inflammatory pathways, and the optimization of drug efficacy and safety.

45. **Crystallography in Drug Design Topics**

   Studies the role of crystallography in drug design, including the determination of protein structures, the analysis of protein-ligand complexes, and the use of crystallographic data in structure-based drug design.

46. **Integrative Drug Design Strategies Topics**

   Focuses on the integration of multiple drug design strategies, including the combination of computational, experimental, and clinical approaches to optimize drug discovery and development.

47. **Protein-Protein Interactions in Drug Design Topics**

   Studies the targeting of protein-protein interactions in drug design, including the identification of small molecules that disrupt or enhance protein-protein interactions, and the development of drugs that target protein complexes.

48. **Bioinformatics in Drug Design Topics**

   Focuses on the role of bioinformatics in drug design, including the analysis of genomic and proteomic data, the prediction of drug-target interactions, and the development of computational tools for drug discovery.

## Other Categories

- **Fundamentals of Drug Designing**
  - Introduction to Drug Discovery and Development
  - Pharmacokinetics and Pharmacodynamics
  - Target Identification and Validation

- Lead Discovery and Optimization
- Structure-Activity Relationship (SAR) Studies
- Medicinal Chemistry and Compound Design
- High-Throughput Screening and Assays
- Computational Chemistry and Molecular Modeling
- In Vitro and In Vivo Testing
- Applications of Drug Designing in Medicine

- **Computational Methods in Drug Designing**
  - Computer-Aided Drug Design (CADD)
  - Molecular Docking and Virtual Screening
  - Pharmacophore Modeling and QSAR
  - Quantum Chemistry and Molecular Dynamics
  - Structure-Based Drug Design (SBDD)
  - Fragment-Based Drug Discovery (FBDD)
  - Machine Learning in Drug Designing
  - Drug-Likeness and ADMET Prediction
  - Data Mining and Chemoinformatics
  - Future Trends in Computational Drug Designing

- **Medicinal Chemistry and Pharmacology**
  - Synthesis of Bioactive Compounds
  - Organic Chemistry in Drug Development
  - Natural Products and Drug Discovery
  - Mechanism of Action Studies
  - Receptor-Ligand Interactions
  - Enzyme Inhibition and Activation
  - Pharmacological Profiling and Toxicology
  - Drug Metabolism and Pharmacokinetics
  - Clinical Pharmacology and Therapeutics
  - Future Directions in Medicinal Chemistry

- **Drug Development and Clinical Trials**
  - Preclinical Development and Testing
  - Clinical Trial Design and Phases
  - Regulatory Requirements and Approvals
  - Good Manufacturing Practices (GMP)
  - Quality Control and Assurance
  - Biostatistics and Data Analysis
  - Post-Market Surveillance and Pharmacovigilance
  - Drug Patents and Intellectual Property
  - Commercialization and Market Strategy
  - Future Directions in Drug Development

- **Future Directions and Emerging Trends**
  - Innovations in Drug Designing
  - Role of Drug Designing in Precision Medicine
  - Emerging Applications in Drug Discovery
  - Global Trends in Drug Designing Research
  - Future of Drug Designing in Healthcare

- Ethics and Regulation in Drug Development
- Future Research Priorities in Drug Designing
- Impact of Drug Designing on Society
- Public Engagement and Education in Drug Discovery
- Integration of Drug Designing with Artificial Intelligence

# Contact Via WhatsApp on +91-7993084748 for Fee Details

Apply

| Internship Fee Structures | | | |
|---|---|---|---|
| **Duration** | **Academic Mode** | **Technical Mode** | **Research Mode** |
| **5 Days** | Rs 3750 | Rs 6000 | Rs 9000 |
| **10 Days** | Rs 4500 | Rs 6750 | Rs 9750 |
| **15 Days** | Rs 4950 | Rs 7200 | Rs 12000 |
| **20 Days** | Rs 6750 | Rs 9000 | Rs 15000 |
| **30 Days** | Rs 7500 | Rs 10500 | Rs 19500 |
| **45 Days** | Rs 9000 | Rs 12000 | Rs 22500 |
| **2 Months** | Rs 10500 | Rs 13500 | Rs 27000 |
| **3 Months** | Rs 12000 | Rs 22500 | Rs 34500 |
| **4 Months** | Rs 18000 | Rs 28500 | Rs 42000 |
| **5 Months** | Rs 22500 | Rs 31500 | Rs 49500 |
| **6 Months** | Rs 27000 | Rs 36000 | Rs 54000 |
| **7 Months** | Rs 28500 | Rs 40500 | Rs 64500 |
| **8 Months** | Rs 31500 | Rs 45000 | Rs 72000 |

| 9 Months | Rs 36000 | Rs 52500 | Rs 82500 |
|----------|----------|----------|----------|
| 10 Months | Rs 43500 | Rs 60000 | Rs 97500 |
| 11 Months | Rs 48000 | Rs 67500 | Rs 112500 |
| 1 Year | Rs 57000 | Rs 75000 | Rs 142500 |

**18% additional GST on all fee structures.**

**Installment options are available for all durations.**

**NTHRYS Students**

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| Deliverables | Academic Mode | Technical Mode | Research Mode |
|--------------|---------------|----------------|---------------|
| Certification | ✅ | ✅ | ✅ |
| Hands-On Practical Exposure | ✅ | ✅ | ✅ |
| Thesis | ✅ | ❌ | ✅ |
| PowerPoint Assistance | ✅ | ✅ | ✅ |
| Protocol Repetitions | ❌ | ✅ | ✅ |
| Publication Coauthorships | ❌ | ❌ | 3 Months Duration onwards |
| References | ❌ | ✅ | ✅ |

| Recommendations | ❌ | ❌ | ✅ |
|---|---|---|---|
| Experience Letters | ❌ | ❌ | 6 Months Duration Onwards |
| Placement Assistance | ❌ | ❌ | 6 Months Duration Onwards |
| Placement Guarantee | ❌ | ❌ | 1 Year Duration |

## Offline Locations

Hyderabad

Cherlapalli IDA, 500051   Chennai

Parrys Corner, 600001   Bangalore

Jalahalli, Bahubali Nagar   Kochi

Aroma Gardens, Beside Townhall Metro   Visakhapatnam

Address will be updated in few days   Bhubaneswar

Address will be updated in few days   Kolkata

Address will be updated in few days   Patna

Address will be updated in few days   Lucknow

Address will be updated in few days   Chandigarh

Address will be updated in few days   Jaipur

Address will be updated in few days   Ahmedabad

Address will be updated in few days   Indore

Address will be updated in few days   Dallas

**825 Watters Creek Blvd, Allen**

## Contact Us for further queries

## Offline Timetable

3 - 5 Hours per day | 4 Days Practicals / week | 1 Day Reporting

### Weekly Schedule

**Tuesday to Friday:** Practical Sessions
**Saturday:** Documentation Day
**Sunday & Monday:** Weekend Holidays

### Lab Working Hours

**9:30 AM to 5:30 PM**

Students/Scholars are assigned **3 to 5 hours/day** based on their protocols.

## Online Mode Workflow

**2 to 4 hours per day as per discussed with NTHRYS Management before booking the slot.**

All activities (Online / Virtual and Offline) are managed through the **NTHRYS Project Dashboard System** — a web portal designed exclusively to facilitate, guide, and track your progress throughout each phase.

### Phase 1: Topic / Title Finalization

Guided assistance in selecting and refining your research topic or project title within

the dashboard interface.

## Phase 2: Research Methodology Finalization

Step-by-step guidance in defining objectives, research questions, and methodology using interactive templates and mentor feedback on the dashboard.

## Phase 3: Software, Tools, and Statistical Approaches

Installation assistance, tool demonstrations, and access to recommended software provided via the dashboard with mentor instructions and documentation.

## Phase 4: Task Execution

Students/scholars execute research tasks on their own systems while mentors monitor and guide progress through the dashboard system.

## Phase 5: Results Analysis

Data analysis, results review, and interactive discussions are facilitated through dedicated dashboard modules ensuring research integrity.

## Phase 6: Documentation

Proper documentation of results, methodology, and conclusions using dashboard templates, ensuring consistency and completeness.

**No Video Calls, No Theory Classes:** All learning is task-based, with hands-on execution by students/scholars under the guidance of mentors using the **NTHRYS Project Dashboard System**.

# Click Here to know schedule, offline locations, calendar, modes of operation etc.,

| Important Note |
|---|
| Note 1: Candidates may select any one of the focused areas listed for their internship. |
| Note 2: Fundamental concepts are provided as guidance for candidates who require them; however, candidates may choose to bypass these sections if desired. |
| Note 3: All candidates will gain practical, hands-on experience with every step outlined in the provided methodology. |
| Note 4: Comprehensive placement assistance and career guidance will be available to all candidates during and after the internship. |
| Note 5: We understand that many students may lack basic practical exposure due to shortcomings in their college education. This is not the fault of the students but rather a failure of the institutions and their staff. At NTHRYS, our staff excel at training every student from the ground up, ensuring they gain the necessary skills and experience. |