

AI Drug Discovery and Development Portfolio Course

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Overview

AI Drug Discovery and Development Portfolio Course is a two-week course for pharmaceutical research managers, drug development leaders, clinical innovation teams, biomedical research coordinators, R&D portfolio personnel, and life-sciences governance teams, who leave with an AI Drug Development Portfolio Plan. Participants assess targets, evidence, data, candidates, preclinical and clinical uses, safety signals, model credibility, human review, portfolio choices, and lifecycle monitoring. Agile Leaders Training Center provides training in AI drug discovery and development portfolio management.

Who Should Attend

- Pharmaceutical research personnel responsible for discovery priorities and evidence
- Drug development personnel responsible for candidate progression and decisions
- Clinical innovation personnel responsible for trial-support use cases
- Biomedical research personnel responsible for data and reproducibility
- R&D portfolio personnel responsible for investment and stage-gate choices
- Life-sciences governance personnel responsible for credible and monitored AI use

The course assumes participants contribute to pharmaceutical research or development decisions and leaves out computational chemistry coding, bioinformatics specialization, laboratory technique, and clinical diagnosis.

Departments and Industries

The course supports governed AI decisions across pharmaceutical discovery and development environments.

- Drug discovery and translational research
- Preclinical and clinical development
- Clinical operations and trial innovation
- Pharmacovigilance and safety functions
- Pharmaceutical and biotechnology organizations
- Research institutes and contract research organizations

Learning Objectives

By the end of this course, participants will be able to:

- Analyze AI use cases across the drug lifecycle
- Evaluate target, data, candidate, and trial evidence
- Apply context-of-use and credibility controls
- Build human review and reproducibility safeguards
- Prioritize initiatives and monitor lifecycle risks
- Build an AI Drug Development Portfolio Plan

Course Agenda

Day 1: Lifecycle Opportunities and Decisions

- Medicinal Product AI Lifecycle Map
- Drug R&D Value-Pool Assessment
- AI Use-Case Definition Canvas
- Scientific Decision Impact Matrix
- Multidisciplinary Ownership and RACI Chart

Day 2: Target Evidence and Data Readiness

- Target Identification Evidence Map
- Target Validation Question Set
- Biomedical Data Source Register
- Data Provenance and Quality Checklist
- Population and Bias Review Card

Day 3: Molecules and Candidate Prioritization

- Molecular Design Use-Case Screen
- Virtual Screening Evidence Table
- Candidate Prioritization Scorecard
- Prediction Uncertainty Record
- Human Scientific Review Gate

Day 4: Preclinical Planning and Reproducibility

- Preclinical Evidence Dependency Map
- Experimental Design Support Checklist
- Reproducibility and Replication Plan
- Model Limitation and Applicability Statement
- Preclinical Decision Traceability Log

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Day 5: Context of Use and Credibility

- AI Context-of-Use Statement
- Risk-Based Credibility Assessment
- Performance Evidence Requirement Matrix
- Interpretability and Explainability Review
- Model Documentation and Change Register

Day 6: Clinical Development Support

- Clinical Development Use-Case Map
- Protocol Design Support Boundary
- Patient Selection Evidence Checklist
- Clinical Endpoint Support Review
- Human Clinical Decision Gate

Day 7: Trial Operations and Data Quality

- Trial Operations Workflow Map
- Site and Recruitment Support Screen
- Clinical Data Integrity Control List
- Protocol Deviation Signal Review
- Trial AI Output Verification Record

Day 8: Safety Signals and Lifecycle Monitoring

- Safety Signal Use-Case Assessment
- Pharmacovigilance Human Review Flow
- Model Performance Monitoring Baseline
- Drift Alert and Escalation Rules
- Lifecycle Reassessment Schedule

Day 9: Portfolio Governance and Sequencing

- AI Initiative Value and Risk Matrix
- Drug R&D Portfolio Prioritization Board
- Stage-Gate Evidence Decision Template
- Capability and Workforce Readiness Map
- Implementation Sequence and Dependency Plan

Day 10: Drug Development Portfolio Practice

- Suggested Exercise: Map Lifecycle Use Cases and Evidence
- Suggested Exercise: Review Targets, Data, and Candidates
- Suggested Exercise: Assess Clinical and Safety Controls
- Suggested Exercise: Prioritize Initiatives and Monitoring
- Capstone Exercise: AI Drug Development Portfolio Plan

Practical Exercises

The course uses suggested activities that turn AI opportunities into evidence-based and governed drug-development decisions.

- Suggested activity: map lifecycle opportunities, define contexts of use, and assign decision ownership
- Suggested activity: review target evidence, data provenance, candidate uncertainty, and reproducibility
- Suggested activity: set clinical boundaries, verify trial outputs, and design safety-signal review
- Suggested activity: rank initiatives, set stage gates, sequence capabilities, and plan lifecycle monitoring

FAQs

Who suits AI drug discovery and development training, and what does it assume?

AI drug discovery and development training suits personnel responsible for research, candidate progression, clinical innovation, biomedical evidence, R&D portfolios, or governance. It assumes familiarity with the drug-development lifecycle and requires no coding.

How does AI drug development portfolio training differ from computational drug design training?

Portfolio training focuses on use cases, evidence, credibility, human review, stage gates, governance, and monitoring, while computational drug design training develops technical modeling and coding skills.

What makes an AI model credible for a drug-development decision?

Credibility depends on a clear context of use, risk-proportionate evidence, suitable data, documented performance, uncertainty and limitations, reproducibility, human review, change control, and lifecycle monitoring.

How should teams prioritize AI opportunities in drug development?

Teams should compare scientific value, decision impact, evidence readiness, risk, data access, workflow fit, review capacity, implementation dependencies, monitoring needs, and reversibility.

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What belongs in an AI Drug Development Portfolio Plan?

The plan should include lifecycle use cases, contexts of use, evidence requirements, data sources, decision owners, human review, stage gates, initiative priorities, capability gaps, sequencing, performance measures, and reassessment triggers.

Conclusion

Participants take back an AI Drug Development Portfolio Plan connecting discovery, evidence, candidates, preclinical and clinical work, safety, credibility, governance, and monitoring. It changes how teams select and oversee AI-supported R&D decisions. The plan provides a basis for risk-proportionate evidence, reproducible work, accountable review, sequenced investment, and lifecycle control.

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