

# AI for Regulatory Data Processing in Healthcare

**Duration: 50 hours**

## Overview

This comprehensive course delves into the intersection of Python programming, AI, and business automation to equip learners with the skills needed to navigate regulatory challenges in industries like healthcare and pharma. Building on the basics of Python, students progressively explore advanced programming techniques, machine learning, natural language processing, and AI-driven regulatory compliance solutions. Hands-on projects foster practical understanding, including automating data processing, creating interactive dashboards, and building customized AI copilots for compliance tasks. The course also emphasizes leveraging tools like Azure Document Intelligence and Power BI to derive actionable business insights from unstructured regulatory data. Learning with real-world case studies and a final project, participants gain expertise in deploying end-to-end AI solutions tailored to regulatory requirements.

## Audience Profile

This course is tailored for professionals who work in industries like healthcare, pharmaceuticals, or other heavily regulated sectors, where compliance and risk management are critical. It's ideal for data scientists, regulatory analysts, compliance officers, and IT specialists looking to enhance their Python programming skills and apply AI-driven solutions to automate workflows and streamline regulatory processes. Additionally, the course welcomes business leaders and decision-makers who want to harness AI tools to extract actionable insights from unstructured data and drive automation in regulatory contexts. Prior experience with basic programming concepts and familiarity with regulatory environments is recommended, though not mandatory.

# Course Syllabus

## Module 1: Foundations of Python for AI

- Introduction to Programming & Python Basics
- Data Types, Control Structures & Functions
- Working with Data: Lists, Dictionaries, and JSON
- Hands-on: Writing Simple Automation Scripts for Document

## Module 2: Advanced Python for AI & Business Applications

- File Handling & Working with APIs
- Data Processing with Pandas & NumPy
- Automating Data Extraction & Transformation
- Hands-on: Automating Regulatory Data Processing Tasks

## Module 3: Introduction to AI: Machine Learning & NLP

- Understanding AI in Regulatory Context
- Machine Learning for Compliance & Risk Assessment
- Natural Language Processing (NLP) for Document Understanding
- Hands-on: Extracting Meaning from Regulatory Texts

## Module 4: Building AI Solutions for Regulatory Compliance

- Entity Recognition & Classification in Regulatory Documents
- Supervised vs. Unsupervised Learning for Compliance
- ML Workflow: Data Processing, Model Training, & Evaluation
- Hands-on: AI-Driven Risk & Compliance Monitoring

## Module 5: Extracting Business Insights with Azure Document Intelligence

- Understanding Document AI & OCR Technologies
- Extracting Key Entities from Dossier & Healthcare Documents
- Processing Unstructured Data for Regulatory Analysis
- Hands-on: Automating Document Review for Regulatory Compliance

## **Module 6: Data Visualization & Regulatory Analytics**

- Introduction to Data Visualization & Power BI
- Transforming Raw Regulatory Data into Actionable Insights
- Creating Interactive Dashboards for Regulatory Decision-Making
- Hands-on: Visualizing AI Predictions for Regulatory Compliance

## **Module 7: AI-Driven Business Automation in Healthcare**

- Automating Workflows for Drug Approval Processes
- Connecting Data Sources for Seamless Regulatory Reporting
- AI-Driven Decision Making & Compliance Automation
- Hands-on: Automating Regulatory Report Generation

## **Module 8: Developing Custom AI Copilots (Part 1)**

- What is a Copilot? AI Assistants for Healthcare & Pharma
- Understanding LLMs: GPT, Claude, Gemini & More
- Training & Customizing AI Assistants for Regulatory Needs
- Hands-on: Creating an AI-Powered Compliance Assistant

## **Module 9: Developing Custom AI Copilots (Part 2)**

- Enhancing AI Copilots with Business-Specific Regulatory Data
- Integrating AI Assistants into Healthcare & Pharma Workflows
- Deploying & Managing AI Assistants in Regulatory Contexts
- Hands-on: Implementing an AI-Powered Regulatory Query System

## **Module 10: Final AI Project & Industry Case Studies**

- Case Study Discussion
- Final Hands-on: Deploying a Business AI Solution for Data Extraction using AI