

WEEK 01 | Oct 17 (Sat) 10:00 - 15:00 @ SUNY Korea A211

BIOINFORMATICS & ML: CANCER DRUG RESPONSE

Instructor: Dr. Hyungseon Jeong + SUNY TAs

Dataset: GDSC DepMap Framework (400 Cell Lines, 144 Genes, 12 Drugs, ~4,100 pIC50)

Environment: Google Colab (Python) · Minimal 2-line student code implementation

Step 01 : Biological & ML Basics

Gene expression profiles, dose-response curves, pIC50, baseline R^2

Step 02 : Exploratory Data Analysis

Distribution across 6 cancer tissues, gene-drug correlation heatmaps

Step 03 : Baseline Model Fitting

Train/val partition, model fitting (fit/predict), residual scatter plots

Step 04 [CORE]: Data Leakage Audit
Random Split ($R^2 \approx 0.56$) vs Cell-line Split ($R^2 \approx 0.30$, -46% drop)

Step 05 : Optimization & Leaderboard

Tree depth tuning, pathway selection (EGFR, MAPK, PI3K)

Step 06 : Interpretability & Biomarkers

Top 10 biomarkers/drug, mechanism pathways & tissue controls

WEEK 02 | Oct 24 (Sat) 10:00 - 15:00 @ SUNY Korea A211

APPLIED GENAI: B2B SMART LOGISTICS PLATFORM

Instructor: Prof. Yoonseok Yang (SUNY CS) + Dr. Hyungseon Jeong +SUNY TAs

Domain Data: 8 Logistics Catalogues (Cold-chain, ambient) & 5 Shippers

Tech Stack: Google Gemini API, Colab Secrets, SQLite, Pydantic JSON

Session 01 : SCM Special Lecture

Digital transformation, automated workflows, integration patterns

Session 02 : Architecture & Setup

AI Studio API auth, Colab Secrets, SQLite relational schema setup

Session 03 [CORE]: Multimodal Generation
Image bytes + raw specs into Gemini; structured Pydantic JSON

Session 04 : UI Binding & Orders

Connecting JSON into live cards, handling shipper order commits

Session 05 : Dispatch Planning Logic

Grouping by zone/temp rules; analyzing LLM scope vs TSP algorithms

Session 06 : Analytics Dashboard

Aggregating margin, profit rates, tracing full data lifecycle

WEEK 03 | Oct 31 (Sat) 10:00 - 15:00 @ GUGC Gh201

CAPSTONE DEMO DAY: PITCH & CERTIFICATION

4 Joint Participating Universities

GUGC SUNY Korea George Mason Korea
Utah Asia Campus

Phase 01: Team Pitching

Cross-university student presentations, architecture reviews, and expert mentoring Q&A.

Phase 02: Joint Accreditation

Official Joint Certificate Award Ceremony & Networking
Reception with Instructors

Official Joint Certification