2019 Healthcare Data Science Course Program

September 30 – October 3, 2019,
University of Brescia

Monday September 30 (17:00–19:00)
Welcome Cocktail Reception – Drinks and hors d'oeuvres will be served

Essentials of Healthcare Data Science Lectures

Day 1: Monday September 30 (9:00 – 17:00)
Theme: Basic skills for working with large databases

Overview of administrative data and different epidemiological approaches
Diagnostic and procedure codes
Comorbidities and risk scores
Harmonization of variables
Statistical approaches to large data sets

Day 2: Tuesday October 1 (9:00 – 17:00)
Theme: Statistical Methods for utilizing large databases

Data Selection and navigating selection bias
Multiple, repeating or competing events
Utilizing surveillance data
Multiple and Logistic regression
Survival analysis
Propensity scores
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## Applying Knowledge of Healthcare Data Science

### Day 3: Wednesday October 2 - Theme: Practical Applications of Knowledge (9:00 – 17:00)

- Introduction to Clinical Epidemiology
- Cancer databases (SEER, WHO, National Cancer Registry)
- Applying cancer registries to clinical practice and research
- Understanding Geospatial Data
- Environmental exposure data – The example of Polychlorinated Biphenyls

### Day 4: Thursday October 3 - Theme: Practical Applications (continued) and Addressing Limitations of Large Databases (9:00 – 17:00)

- Linking cohort to claims data
- Misclassification and bias in healthcare data
- Missing Data
- Healthcare Data Communication using Social and Mass Media
- Natural Language Processing for Large Databases / Electronic Medical Records
- Faculty presentations of research using large databases
- Opportunity for students to present/discuss an idea they have