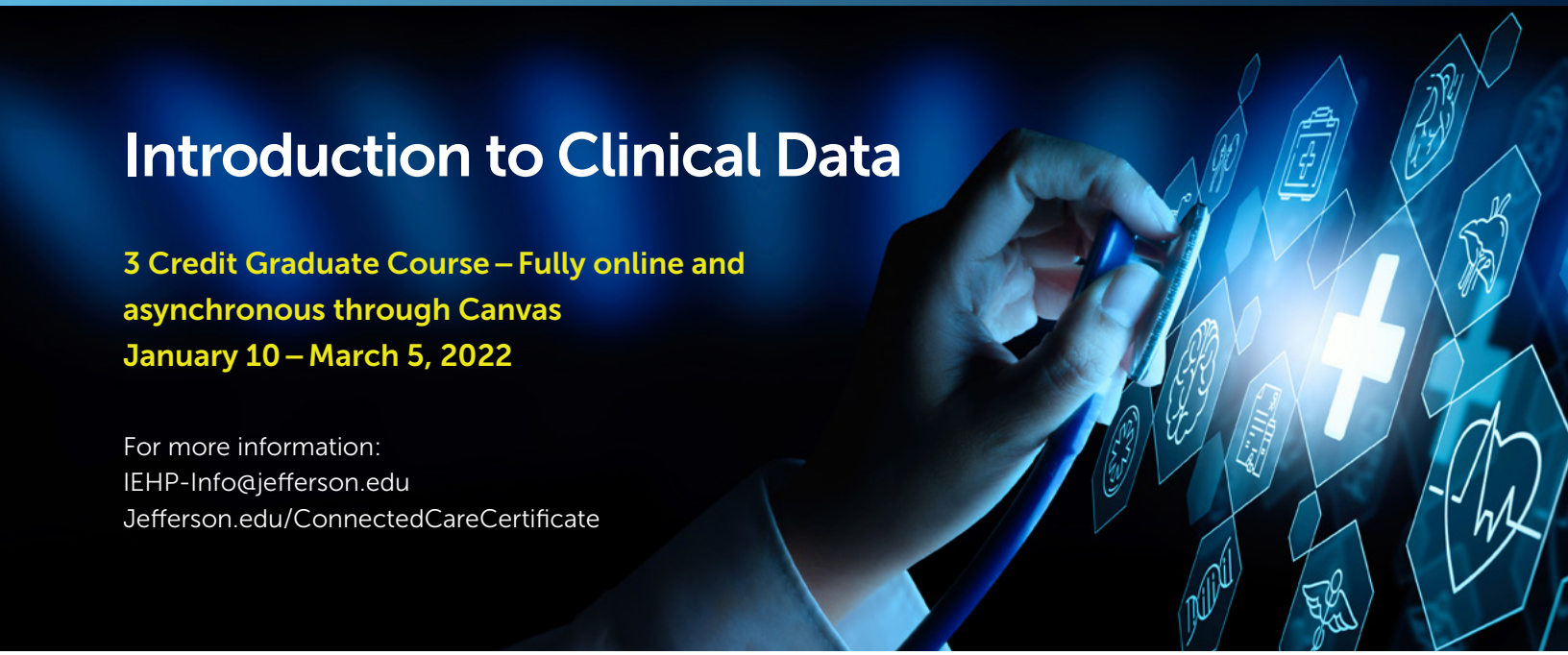
Introduction to Clinical Data



3 Credit Graduate Course – Fully online and asynchronous through Canvas
January 10 – March 5, 2022

For more information:
IEHP-Info@jefferson.edu
Jefferson.edu/ConnectedCareCertificate

COURSE DESCRIPTION

This course introduces students to clinical data in healthcare. The course explores data in three different focus areas:

- Clinical Research
- Product Development
- Data Analysis
  - ~ Economic & Environmental
  - ~ Behavioral & Public Health
  - ~ Predictive Data

These focus areas will help you understand how to build frameworks and useful clinical data pipelines to solve real-world problems. The course describes the systems that exist within healthcare for data collection, storage and analysis and explores methods for evaluating different types of healthcare data. Learners will identify successful ways that the analysis of healthcare data has been integrated into clinical decision support. Learners will create a proposal and case study on how to use clinical data to help predict or improve health outcomes for patients or their organization. You will be given the skills to take your clinical data expertise into the real world with behavior-driven design and technical systems thinking skills.

By the end of the course, the learner will:

- Describe basics of computing, data and systems in the industry that showcase that information best,
- Evaluate the applications, benefits and challenges of applying data to health care, particularly telehealth,
- Apply the available tools for data analysis with the potential to incorporate these within a telehealth encounter,
- List and employ common data analytics strategies in healthcare,
- Describe, propose and evaluate the best data solutions in market to use in a clinical setting,
- Identify the ethical, legal and regulatory considerations of incorporating different forms of data into healthcare,
- Examine programmatic issues and methodologies to incorporate data into clinical decision support for connected care. This course is designed for all physicians, psychologists, pharmacists, nurse practitioners, nurses, physician assistants and other health professionals as well as leaders and managers interested in broadening their knowledge in healthcare data evaluation, storage and analysis.

INTERACTIVE COURSE STRUCTURE

The course features 8 Modules that include a myriad of asynchronous learning tools, video and audio presentations, articles and, peer to peer Discussion Boards. Hands-on practical assignments will enable students to acquire key knowledge and skills.

CONNECTED CARE: TELEHEALTH AND DIGITAL HEALTH INNOVATION GRADUATE CERTIFICATE

This course is part of a 9-credit, 3-courses graduate certificate that explores the convergence of technology and health care. Students will examine strategies designed to improve healthcare delivery and outcomes, engage patients, create and mine new data repositories and support positive health behaviors.

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Thomas Jefferson University

COURSE FACULTY

Michael McCoy, BS
Course Instructor

Mr. McCoy is an applied research and product manager with experience in building emerging technology in the healthcare, life science and public sector industries. At the heart of his work is a mission to improve our health and experiences with technology.

Professionally Mr. McCoy is the Associate Director of Emerging Technology at Humana ,where he helps manage and build new software, hardware and technical systems for the Healthcare Services Emerging Technology portfolio. Previously at Accenture and ConsenSys, he has worked in technical strategy, product development, integration and growth roles to build technical and sustainable solutions.

He is proud to be an adjunct faculty member at The Institute of Emerging Health Professions as a lecturer and course developer for the graduate certificate programs. Outside of his day job, he is the Chair of The Linux Foundation, Hyperledger Healthcare Special Interest Group and is an active member to IEEE, HIMSS, Frontiers, Blockchain in Healthcare Today, Blockchain for Social Impact and other technical and social working groups.

GUEST SPEAKERS

The course will feature a variety of speakers from Fitbit, Facebook, Humana, Illumina, IQVIA, The CRISPR Journal, Bayer, Sanofi, Accenture and many more!

HOW TO APPLY

To register for this individual course as a non-degree student please visit **Jefferson.edu/NonMatriculated**

To enroll in the Connected Care graduate certificate, please visit **Jefferson.edu/ConnectedCareCertificate**

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Module 1

Basics of Computing, Data & Technical Thinking

Basics of Computing

Privacy, Sharing & HIPAA

Electronic Health Record (EHR)

History & Evolution of EHRs (DICOM, HL7, FHIR, APIs)

Challenges & Advantages of EHRs and Data Interoperability

How to Build a Technical Proposal & Case Study

Data Modeling & Framing

Module 2

Clinical Research

Clinical Trial Recruitment

Comparative Clinical Research

Open Label Clinical Research & Phases of Clinical Trials

Clinical Data Management Systems

Types of Clinical Data

Steps to Evaluating Clinical Data

Modern Use Cases

Module 3

Clinical Product Development

The Business of Healthcare

Sources of Data

Evaluating Target Markets

Market & Portfolio Strategy Building

Product Plans & Marketing Programs

Healthcare Claim Decision Making

Product & Software Development Lifecycle

Member Journey's, Data Flow Diagrams, General Architecture Building

Module 4

Economic & Environmental Data Analysis

Health Insurance & How Risk is Managed

Hospital Competition Effects on Prices & Care

Government Regulations: Subsidies, Taxes, Anti-Trust Enforcement

Pharmaceutical Pipelines, Value Drugs, Intervention & Analysis Methods

Environmental Data Purposes & Measurements

Environmental Health Examples & Quantitative Meanings

Module 5

Behavioral & Public Health Analysis

Social Determinants of Health (SDoH) Frameworks

Patient Generated Health Data

Search Engine Data Evaluations

Social Media Monitoring & Triaging

Types of Public Health Datasets (Census & Societal)

Module 6

Predictive Health Data Analysis

Data Quality Structures

Types of Healthcare Analytics

Lifecycle of Predicting Health Outcomes

Predictive Analytic Methodologies

Intro to Artificial Intelligence & Machine Learning in Healthcare

Use Cases for Prediction in Care, Administration & Product Development

Module 7

Technical, Clinical Reasoning & Decision Making

Healthcare Data Analytic Lifecycle

Shared Decision Making in Healthcare

Test Driven Development and Behavior Driven Development

Importance of Development Models

Emotional Intelligence

Remote Patient Monitoring Decision Making

Module 8

Clinical Data Use Cases & Technologies

Administrative, Finance, Infrastructure Management

Risk & Fraud Prevention

Consumer & Retail

Wearables in Clinical Measurement & Tracking (RPM)

Medical Imaging for Diagnostics & Digital Pathology

DNA, Genomic Sequencing & Digital Twins

CRISPR, Data Ethics, Forward Clinical Data Approaches