ITCR UE5 Education Resource Introduction
Why this UE5?
Motivation for the ITCR Education Resource

Recommendation from the 2018 ITCR Evaluation: “The NCI should consider developing formal education outreach functions (courses, workshops, etc.) to introduce ITCR tools to the larger biological user community.”

From the RFA (RFA-CA-19-042): “The overarching goal...is to provide educational resources that will enhance the use of the informatics tools...supported through the ITCR program...by increasing the ability of the broader cancer research community to incorporate informatics analyses into their research programs and by improving the usability of ITCR tools.”

Intended to complement and amplify the outreach and support conducted by individual ITCR development teams
Introductions
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Opportunity!

https://apply.interfolio.com/81395
Organization
Website
ABOUT THE ITN

The Informatics Technology for Cancer Research Education Resource is a collaborative effort of researchers around the United States to support cancer informatics and data science training through resources, technology, and events. Our courses feature tools developed by ITCR Investigators and make it easier for principal investigators, scientists, and analysts to integrate cancer informatics into their workflows.
Project Goals

Content
Content Creation

Open source
Remixable
MOOC Creation

Free on Leanpub
Asynchronous Learning
Project Goals

Events
“In person training”

Synchronous online
In person (2022 or 2023?)
Program Faculty Keynotes
Train the trainer

Synchronous online
In Chicago (2022 or 2023?)
Funding for HBCU, CC, MSI faculty
Citizen Science
Project Goals

Platform
Content Sharing

On Github
Remixable/Findable
Video/Course Generation

mario platform

www.itcrtraining.org/develop
Training Events
Project Timeline
Software: ari for videos
Software: didactr for courses
Software: ari for translation
Software: www.itcrtraining.org

CI: Cancer Informatics for PIs
CI: Cancer Informatics Data Management
CI: Cancer Informatics Data Visualization
CI: Cancer Genome Informatics
CI: Cancer Clinical Informatics
CI: Cancer Imaging Informatics
CI: Machine Learning for Cancer Informatics
CI: Reproducibility for Cancer Informatics

UU: Documentation and Tutorials
UU: Dissemination and Engagement

ITN Direct Training
ITN Train the Trainer

Evaluation and Update
Opportunities for Collaboration
ITCR Faculty

Keynote Sessions
Review Materials
Have your Tool Highlighted
www.itcrtraining.org/join-us
Usability and Dissemination
Course Structure and Design

- **Structure**
  - 4 week online courses
  - 2 hours of lecture content per week

- **Format**
  - Markua Markdown files
  - Google Slides

- **Distribution**
  - Github for content
  - Leanpub for MOOCs (possibly Coursera as alternative)
Usability Courses

Dissemination and Engagement

**Audience:** ITCR and other tool developers

**Focus:**
- Distribution of code via Github
- Dissemination via Social Media
- Distribution via Bioc/Galaxy communities

Documentation and Tutorials

**Audience:** ITCR and other tool developers

**Focus:**
- Tutorials
- How to’s
- Explanations
- Reference documentation
Cancer Informatics
Cancer Informatics Courses

Cancer Informatics for PIs

**Audience:** PIs of Medical and Biological Labs

**Focus:**
- Tools
- Collaboration
- Personnel Management
- Data management
- Computing Management

Cancer Informatics: Data Visualization

**Audience:** Cancer informatics tool users

**Focus:**
- Exploratory vs. Expository Graphics
- Scientific Visualization Principles
- Grammar of Graphics
- Glamour of Graphics
Cancer Informatics Courses

Cancer Genome Informatics

**Audience:** Cancer informatics tool users

**Focus:**
- Annotating genomic data
- Using genomic databases
- Networks
- Ontologies

Cancer Imaging Informatics

**Audience:** Cancer informatics tool users

**Focus:**
- Cancer imaging tools
- Visualization
- Annotation
- Reproducible pipelines
Cancer Informatics Courses

**Cancer Clinical Informatics**

**Audience:** Cancer informatics tool users

**Focus:**
- FAIR principles
- Tools for management and analysis
- Phenotyping and ontologies
- Data visualization

**Reproducibility for Cancer Informatics**

**Audience:** Cancer informatics tool users

**Focus:**
- Definitions and concepts
- Jupyter Notebooks
- Rmarkdown Documents
- Galaxy Workflows
- Snakemake
Cancer Informatics Courses

Cancer Informatics Data Management

Audience: Cancer informatics tool users

Focus:
- Principles of data management
- Cloud tools
- IRB, ethics, and privacy
- Personnel management
- Data sharing framework

ML for Cancer Informatics

Audience: Cancer informatics tool users

Focus:
- Structuring machine learning problems
- Defining error measures
- Computational vs Practical Significance
- Error measures
- Ethics
Events
ITN Direct Training

- **Structure**
  - 2 day courses
  - Originally “in person” at ITCR Faculty Home Institutions
  - Now likely synchronous online at least at first

- **Format**
  - ITCR Primary Faculty Instructor
  - ITCR Program Faculty Keynote

- **Audience**
  - Trainees at host institution (originally)
  - Now trainees anywhere?
  - Funding for under-represented groups
ITN Train the Trainer

- **Structure**
  - 2 day courses
  - Originally “in person” at UIC
  - Now likely synchronous online at least at first

- **Format**
  - ITCR Primary Faculty Instructor
  - Citizen Science Training from Project

- **Audience**
  - Faculty at HBCU, CC, MSI
  - Funding for travel/course support
Technology
Discussion