

# Health & Clinical Informatics Major

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# Health & Clinical Informatics (HCIN) major

- Primary goal of HCIN major is to educate the future developers and managers of health and clinical information systems
- Individuals with a variety of backgrounds are provided a strong technical grounding in biomedical informatics, health and medicine, data and computing sciences, and organizational and management sciences so that they may assume positions that require a thorough understanding of both information technology and the health care environment



### **HCIN** major

- Required courses in domains
  - Biomedical informatics
  - Healthcare
  - Data and computing sciences (being renamed from Computer Science)
  - Organizational and management sciences
  - Evaluation
- Additional work depending on program
  - Capstone (MS non-thesis)
  - Thesis (MS thesis)
  - Advanced courses and dissertation (PhD)



### Informatics is not a spectator sport!

- Many hands-on activities for students
  - Research projects of faculty
  - Operational activities, including in OHSU Health System
- Can pursue as practicum or internship
- May lead to capstone, thesis, or dissertation



# A growing understanding of the work of informatics professionals

#### Health Informatics

Domains	Task statements	KS statements
Domain 1. Foundational Knowledge and Skills	NA	31
Domain 2. Enhancing Health Decision-making, Processes, and Outcomes	11	21
Domain 3. Health Information Systems	26	36
Domain 4. Data Governance, Management, and Analytics	17	28
Domain 5. Leadership, Professionalism, Strategy, and Transformation	20	28
Total	74	144

#### Clinical Informatics Subspecialty (CIS)

Domains	Task statements	KS statements
Domain 1. Foundational Knowledge and Skills	NA	26
Domain 2. Improving Care Delivery and Outcomes	7	28
Domain 3. Enterprise Information Systems	16	33
Domain 4. Data Governance and Analytics	10	27
Domain 5. Leadership and Professionalism	9	28
Total	42	142

From 4 (Gardner, 2009) to 5 domains (Silverman, 2019; Gadd, 2020)



# Where does data science fit in? (Payne, 2018)

#### **Informatics**

also uses knowledge to create interventions and tools that impact the world

Biological, Social or Technology Processes

### Data Science and Informatics

both transform data from the world into knowledge

Observed, measured or instrumented to produce **data** 

"Efferent" Processes (from knowledge to world)

Biomedical Informatics and Data Science Process Cycle

"Afferent" Processes (from world to knowledge)

#### **Core Skills**

Evaluation
Implementation Science
Organizational Theory
Human Computer Interaction
Workflow

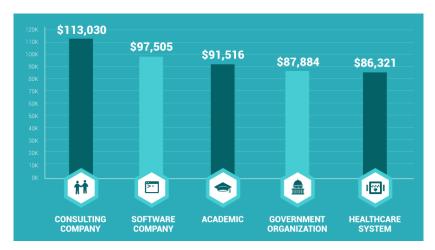
<u>Knowledge</u>

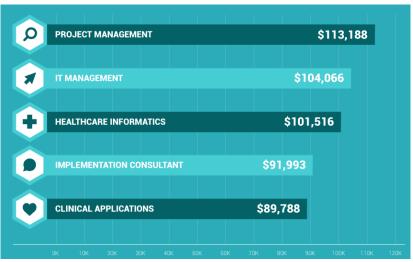
#### Core Skills

Computation
Algorithms
Machine Learning
Statistics
Ontologies
Databases
Domain Knowledge
Visualization



## Plenty of high-paying jobs in clinical informatics





Source: HealthITJobs.com

#### Even higher for some:

- Data analytics
- Physicians
- High-end leadership



### **DMICE** online

- DMICE seminars
  - YouTube
    - https://www.youtube.com/channel/UCCekPERb6i3xXEDQxwlCeIA
- Web and blog
  - Web
    - http://www.ohsu.edu/informatics
  - Blog
    - http://www.ohsu.edu/blogs/health-data/
- Social media
  - Twitter
    - @OHSUInformatics
  - LinkedIn
    - https://www.linkedin.com/groups/962257/
  - Facebook
    - https://www.facebook.com/ohsu.informatics



### Thank You!

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