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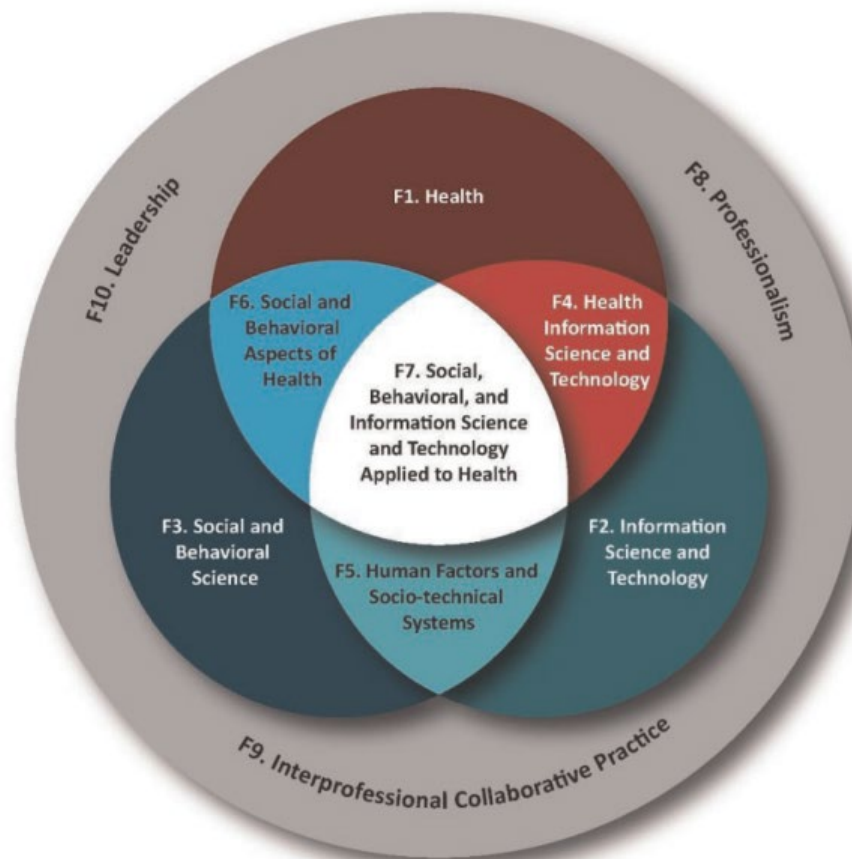


Figure 1. Foundational domains of applied health informatics. Graphic: Christina Lorenzo, MS in Biomedical Visualization, 2017, Department of Biomedical and Health Information Sciences, University of Illinois at Chicago.

FI Health

Undergraduate Level Brief Description

The foundational knowledge of the history, aims, methods, evidence-based practices and current challenges of the major health sciences including the U.S. Healthcare System, healthcare delivery, patient engagement, consumer health, public health, and translational science.

Undergraduate Level Competency

Health refers to the biomedical and health sciences underlying AMIA's 5 major informatics areas: translational bioinformatics, clinical research informatics, clinical informatics, consumer health informatics, and public health informatics. The biomedical and health sciences aim to understand and improve human health. To

identify and develop solutions to biomedical and health informatics problems, students must understand the history, goals, methods (including data and information used and produced), and current challenges of the major health sciences, including healthcare delivery, -patient engagement, consumer health, public health, and translational science.

Knowledge

At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...

- Describe the history, goals, methods (including data and information used and produced), and current challenges of the major health science fields. These include foundations in healthcare terminology, clinical workflow and processes, healthcare delivery and the healthcare environment, translational science, patient engagement, consumer health, public health, and quality improvement.

F2. Information Science and Technology

Undergraduate Level Brief Description

Foundational knowledge of key information science concepts, methods, and tools used to manage and analyze data.

Undergraduate Level Competency

Information Science and Technology refers to the key concepts, methods, and tools for capturing, organizing, processing, and securing data. Competency in understanding of how information is used and the ability to assess needs of various users in IT settings. Knowledge of basic computer programming, databases, information technology terminologies, ontologies, business intelligence systems, data visualization, analytics, and user interface design.

Knowledge

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Understand key concepts and methods used in information science and technology.
- Identify the applicable tools for data capture, storage, retrieval, and analysis for a given informatics problem.
- Work in teams to secure/protect information.

F3 Social and Behavioral Science

Undergraduate Level Brief Description

The foundational knowledge of social, behavioral, and psychological models that seek to describe human actions and interactions as well as human behavior in society.

Undergraduate Level Competency

Social and Behavioral Science refers to basic social, behavioral, and psychological models that seek to describe human actions and interactions as well as human behavior in society. It includes concepts from the fields such as sociology, anthropology, psychology, and cognitive sciences. It is concerned with the application of social, behavioral and psychological models to the design, implementation, and evaluation of health information behaviors at the levels of individuals, organizations, social groups, and society. The purpose is to contribute to decreasing health damaging behaviors and improving health promoting behaviors and psychosocial well-being through health informatics perspectives.

Knowledge

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Identify the effects of social, behavioral, and psychological models applicable to health informatics from multiple levels including individuals, organizations, social groups, and society.

F4 Health Information Science and Technology

Undergraduate Brief Description

The foundational knowledge, skills, and attitudes to identify and use concepts and tools for managing and analyzing bio-medical and health data, information, and knowledge. Key foci include foundational knowledge of system design and development, standards, interoperability, and protection of biomedical and health information.

Undergraduate Level Competency

Health Information Science and Technology refers to the array of health information science and technology models, standards, and tools for collecting, organizing, representing, sharing, securing, using and learning from biomedical and health data, information, and knowledge across the entire spectrum of informatics domains.

Systems design and development addresses standards, regulation, governance, integration, interoperability, and protection of information. These competencies also address computational thinking, which includes problem solving as associated with computer science in healthcare settings.

Knowledge

At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...

- Identify possible biomedical and health information science and technology methods and tools for solving a specific biomedical and health information problem. Core health information technology tools may be dependent upon the application area of the training program.

Skills

At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...

- Identify and describe a solution to a biomedical or health information problem by applying computational and systems thinking, information science, and technology.

Attitudes/abilities

At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...

- Demonstrate consideration of the advantages and limitations of using information science and technology to solve biomedical and health information problems as well as the needs of the different stakeholders and context.

F-5 Human Factors and Socio-technical Systems

Undergraduate Brief Description

The foundational knowledge, skills, and attitudes to identify social behavioral models and human factors engineering to better understand the interaction between users and information technologies, and to be knowledgeable of information system design.

Undergraduate Level Competency

Human Factors and Socio-technical Systems refers to the interactions between human behaviors and information technologies. This domain draws on the principles of social, behavioral, cognitive, economic, human factors engineering, and management and systems sciences in considering the needs, workflows, and practices of individuals and organizations in the context of information systems and technology.

Knowledge

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Draw on socio-technical knowledge regarding the social behavioral models and human factors engineering to identify the design and implementation principles of information systems and technology.

Skills

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Identify and describe social behavioral models and human factors engineering to the design and evaluation of information systems and technology.

Attitudes/abilities

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Demonstrate sensitivity to (understanding of) for the role of users in the design and application of information systems and technology.

F6-Social, Behavioral, and Information Science and Technology Applied to Health

Undergraduate Brief Description

The foundational knowledge, skills, and attitudes to understand social determinants of health and patient-generated data to identify and examine problems arising from health or disease, to recognize the implications of these problems on daily activities, and to recognize and propose practical solutions to managing these problems.

Undergraduate Level Competency

Social and Behavioral Aspects of Health refers to action(s) taken by an individual, groups of individuals, or an organization to manage the health of an individual or population. It entails social determinants and patient-generated data, understanding of problems arising from health or disease, the implications of these problems on daily activities, and the practical solutions to managing these problems. Consumer health, health literacy, informed decision making, patient engagement, and self-management are examples of issues in this domain.

Knowledge

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Understand models that explain and modify patient or population behaviors related to health and health outcome.

Skills

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Identify models, which may be dependent upon the application area of the training program, to address social and behavioral problems related to health of individuals, populations, and organizations.

Attitudes/abilities

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Recognize the importance of social and behavioral models related to health and their contribution to the health of individuals and populations.

F7-Social, Behavioral, and Information Science and Technology Applied to Health

Undergraduate Brief Description

The foundational knowledge, skills, and attitudes to apply the diverse concepts and facets in order to identify design principles, implementation strategies, and evaluation tools of health informatics solutions.

Undergraduate Level Competency

Social, Behavioral, and Information Science and Technology Applied to Health refers to the identification of social, organizational, human factors, behavioral, and information sciences and technologies on the design, implementation, and evaluation of health informatics solutions. The application of health technologies and

clinical and/or organizational processes can impact individual and community health outcomes at numerous levels from healthcare and organizational protocols, to social systems and public health.

Knowledge

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Identify the models from social, organizational, human factors, behavioral, and information sciences and technologies for designing, implementing, and evaluating health informatics solutions. Models may be dependent upon the application area of the educational program.

Skills

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Identify and describe the models from social, organizational, human factors, behavioral, and information sciences and technologies to design, implement, and evaluate health informatics solutions. Models may be dependent upon the application area of the educational program.

Attitudes/abilities

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Recognizes the interrelatedness of social, organizational, human factors, behavioral, and information sciences and technologies in the design, implementation, and evaluation of health informatics solutions.

F8 Professionalism

Undergraduate Level Brief Description

The conduct that reflects the aims or qualities that characterize a professional person, encompassing especially a defined attitude, body of knowledge, skills and their lifelong maintenance as well as adherence to an ethical code.

Undergraduate Level Competency

Professionalism refers to the level of excellence or competence that is expected of a health informatics undergraduate and includes such concepts as the acquisition of knowledge and technical skills, which may be dependent upon the application area of the training program; commitment to ethical principles including those in AMIA's Code of Ethics; and maintenance of the highest standards of excellence in the field including professional development. In health informatics, there is a particular emphasis on preserving the confidentiality, privacy, and security of health data and information, and balancing this emphasis with appropriate stakeholder access.

Knowledge

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Define and discuss ethical principles and the informaticians' roles and responsibilities to the profession, their employers, patients, health

consumers, and any other stakeholders of the informatics solutions they aid in developing, implementing, and maintaining.

Skills

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Define professional practices that incorporate ethical principles and values of the discipline and demonstrate professionalism during interactions with colleagues and stakeholders in the field.

Attitudes/abilities

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Be aware of the value of information literacy and lifelong learning, maintenance of skills, and professional excellence.

F9 – Interpersonal Collaborative Practice

Undergraduate Brief Description

Behavior that reflects the -foundational values/ethics for interprofessional practice, roles/responsibilities for collaborative practice, interprofessional communication practices, and interprofessional teamwork and team-based practice.

Undergraduate Level Competency

Interprofessional Collaborative Practice (ICP) refers to the shared, coordinated work among peers from different professions in order to achieve a common goal or mission. The work should be performed in an ethical manner that involves honesty, integrity, trust, and respect. Part of this domain is teamwork and team-based practice., which involves drawing on individual team members' strengths and expertise to achieve the goals and mission. ICP requires effective communication skills. In summary, the domain requires competencies in values/ethics for interprofessional practice, roles/responsibilities, interprofessional communication, and teams and teamwork.

Knowledge

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Define the scope of practice and roles-and responsibilities of different health professionals and stakeholders to perform effectively in different team roles to solve health information problems.

Skills

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Apply the principles of interprofessional communication practices in a responsive and responsible manner as a participant that supports a team-based approach to solving health information problems.

Attitude

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Recognize the importance of mutual respect and shared values, one's own role and those of other professions and stakeholders, and the role of teams and teamwork to solve health information problems.

F10 Leadership

Undergraduate Brief Description

Leadership refers to the interactive process for which the output is vision, guidance, and direction.

Undergraduate Level Competency

Essentials of leadership include vision, communication skills, and stewardship. Leaders must envision goals, set priorities, manage change, make decisions, communicate, serve as a symbol of one who is willing to take risks and has credible expertise, and guide others by motivating other leaders as well as those who will follow. The concept of followership refers to a role held by certain individuals in an organization, team, or group. Specifically, it is the capacity of an individual to actively follow a leader. For leaders to be successful at leadership, they must possess the following characteristics: credibility, honesty, competence, ability to inspire, and the ability to formulate and communicate a vision.

Knowledge

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Articulate the concepts, tools, and characteristics of various leadership models.

Skills

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Know about leadership and followership concepts and tools to ensure a team progresses toward accomplishing a health informatics vision.

Attitude/Abilities

- *At the time of graduation from an applied bachelor's program related to health informatics, the undergraduate student should be able to...* Demonstrate leadership behaviors as a participant in the larger goal of achieving a vision for health informatics solutions.

To review the core competencies for health informatics education at the Master's level. [Click here.](#)