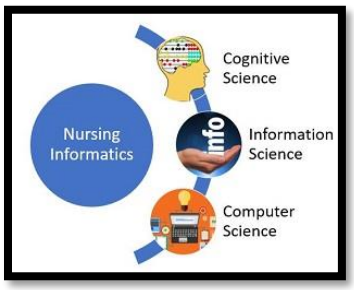
Nursing Informatics Guided Study Group Series



DESCRIPTION

The VHA informatics workforce, including nursing informaticists, are expected to develop and maintain informatics competencies needed for the implementation and maintenance of the new electronic health record.

The **purpose of this series** is to provide:

- An accessible forum and a collaborative learning environment for Registered Nurses interested in studying for the ANCC Nursing Informatics Certification Exam.
- Review materials and learning activities based on the major topic areas covered in the ANCC Nursing Informatics Certification Exam to help guide preparation.

NOTE: One of three different self-study modules is offered on a rotating basis.

GOALS & OBJECTIVES

After completing all three modules, participants will have:

- Acquired a breadth of knowledge concerning theories, models and principles related to nursing informatics to guide practice and leadership.
- Increased awareness of nursing informatics competencies including self -assessment
- Explored laws, regulations and ethical principles related to health information technology.
- Acquired a thorough understanding of the system development life cycle and its various tools and components.
- Examined population health, health equity and social determinants of health.
- Explored data standards and nursing terminologies as related to interoperability.
- Delved into various methods of data analysis and different types of databases.
- Reviewed hardware, software, and peripheral pertaining to health information technology.

PREREQUISITES /FEES

There are no pre-requisites for this course.

It is open to anyone interested in nursing informatics but is geared towards registered nurses who wish to sit for the ANCC Informatics Nurse exam.

There are no course fees and no tuition requirements for the program.

CREDITING

To receive credit for each module, students **must**:

- Complete 80% of the assignments
- Achieve a score of 80% on the posttests (There will be a pre-test and post-test for each section of the course)

Upon successful module completion students can receive these **certificates** (Via TMS):

- A general education certificate.
- An ANCC accredited certificate

The courses are accredited through **ANCC only**. The individual module credits available are as follows:

- Module 1 Foundations of Practice: 20 hours
- Module 2 System Development Life Cycle: 15.5 hours
- Module 3 Data Management & Healthcare Technology: TBD hours

NOTE: Modules 3 is currently undergoing accreditation, so the final number of credit hours is not currently available.

FORMAT

This program utilizes a mix of video lectures and online discussion as well as individual activities hosted via a learning management system called Moodle (Modular Object-Oriented Dynamic Learning Environment).

Students can choose to participate in any or all the three modules in any order. The entire series is **repeated every three months**. The course website can be accessed at http://vatraining.remote-learner.net/. Students can access the course on any PC with Internet access.

Course work is primarily **asynchronous** (independent, self-paced). Students will be required to access their online classroom to review the lectures and complete activities, including voice

over PowerPoints, quizzes, questionnaires, online discussion forums and activities. Students can choose (but are not required) to form study groups if desired.

CONTENT & MATERIALS

Course material is presented via:

- Required readings.
- Videos lecture formats
- PowerPoint slides, Adobe PDFs, word documents and web links
- Supplemental readings
- Discussion forums, questionnaires, and quizzes

Lectures include the following:

- **Required Lectures:** These constitute the equivalent of textbook material for this training program. The lecture content is available in four different formats:
  - Voice-over PowerPoint presentations
  - Audio files
  - Audio transcripts
  - PowerPoint PDFs

Optional Lectures: Some modules include supplemental lectures that provide additional information on module topics so that you may explore a subject in more depth. You will not be tested on this information.

SCHEDULE

Module Number	Title	Month Offered
NOTE: The schedule below is planned. See the area below the grid for the temporary calendar		
1	Foundations of Practice	January April July October
2	System Development Life Cycle	February May August November
3	Data Management and Health Information Technology	March June September December

Due to accreditation challenges, use the temporary schedule below.

- Module 1 will be open March 1st – June 30th with the next session opening July 1st.
- Module 2 will be open April 15th – July 31st with the next session opening August 1st.
- Module 3 will be open around May 10th – August 31st with the next session opening September 1st.

Courses

MODULE 1: FOUNDATIONS OF PRACTICE

COURSE DESCRIPTION	This module covers the nursing informatics scope and standards and competencies, including a competency self-assessment using the TIGER-based Assessment of Nursing Informatics Competencies tool (TANIC©) and the Nursing Informatics Competency Assessment tool (NICA© L3/L4). The module also focuses on nursing informatics theories, rules, regulations, and requirements that guide practice. Finally, this module introduces team building principles and skills as well as communication in informatics. There will be a pre-test and post- test for each topic section to measure knowledge acquisition. The course is comprised of four major topics (36 % of the exam) based upon the 2022 ANCC Nursing Informatics Certification exam outline. These topics are: • Professional practice • Methodologies and theories • Rules, regulations, and requirements • Inter-professional collaboration.
SECTIONS	**Section 1: Professional Practice** Nurse Informaticists must be proficient in multiple areas, including management and informatic principles. Therefore, this section will focus on nursing informatics competencies as well as leadership and management principles that are used within the nursing informatics profession. In addition, evidence- based practice content will be introduced. **Section 2: Informatics Methodologies and Theories** The nurse Informaticist uses informatics principles to employ creative innovative informatics solutions. This

	section will focus on informatics models and theories, including nursing informatics meta structures. In addition, process or quality improvement and change management concepts will be explored. **Section 3: Rules, Regulations, and Requirements** Nurse informaticists must understand the regulatory rules and requirements that govern the health care arena and health information technology. In this section, the health care regulatory environment as well as security, privacy and confidentiality concepts are explored. In addition, the Code of Ethics for Nurses and International Council of Nurse Code of Ethics are discussed. Finally, population health, health equity and Social Determinants of Health (SDOH) are introduced. **Section 4: Inter-professional collaboration** The nurse informaticist must be able to communicate to a variety of stakeholders as well as within teams. Thus, this section will focus on team building principles and skills, including conflict resolution. In addition, informatics communication concepts are explored.
LEARNING OBJECTIVES	1. Utilize the ANA Scope and Standards for Nursing Informatics to provide real world examples of functional areas and the competencies needed for informatics nurses today. 2. Identify general leadership and management principles. 3. Identify models, tools, and techniques for incorporating evidence-based practice into the electronic health record. 4. Identify informatics competencies for all nurses, the informatics nurse and informatics nurse specialist. 5. Identify and utilize appropriate informatics theories and models that support practice when dealing with real informatics issues. 6. Identify and apply common change management and process improvement techniques. 7. Perform a self- assessment of informatics competencies and develop a plan to address weaknesses. 8. Discuss how ethical principles are applied to data informatics solutions.

	9. Identify regulatory, reimbursement and accreditation requirements related to informatics. 10. Recognize legal issues related to malpractice, scope of practice, proprietary data misuse and copy right permissions. 11. Discuss policy promotion and public advocacy for health equity (community-level health equity awareness, social determinants of health, population health and risk stratification) 12. Discuss the security, privacy and confidentiality regulations, laws and principles related to health information technology. 13. Identify team building principles and skills. 14. Describe communication strategies and techniques inside and outside the organization.
CREDIT HOURS	**20**

MODULE 2: SYSTEM DEVELOPMENT LIFE CYCLE

COURSE DESCRIPTION	This module will cover the components of the system development life cycle in detail. It also incorporates project management principles used throughout the life cycle. There will be a pre-test and post- test for each topic section to measure knowledge acquisition. The module is comprised of four major topics (35 % of the exam) based upon the 2022 ANCC Nursing Informatics Certification exam outline. These topics are: • Planning and Analysis • Designing and Building • Testing, Training, and Implementation
SECTIONS	**Section 1: System Development Life Cycle Overview and Project Management Concepts** This section focuses on the System Development Life Cycle (SDLC) and the various methodologies used (waterfall, incremental, spiral, agile etc.). It will also cover project management concepts used in the SDLC. **Section 2: Planning & Analysis** Section 2 focuses on the planning and analysis phase of the system development life cycle. Specific content that

	will be introduced include strategic planning, development of a business case and current/future state assessment tools such as process mapping and workflow analysis. In addition, software, hardware, and networks required for an electronic health record are discussed. **Section 3: Design and Building** In this section, the focus is on usability heuristics used in evaluating information systems as well as ergonomic issues related to information technology. Clinical Decision Support Systems will be introduced in relation to a human factors design approach. **Section 4: Testing, Training, and Implementation** In this section, the focus is on key tasks related to testing, training, and implementation. This includes software testing terminology and process, adult training concepts and implementation strategies. **Section 5: Monitoring, Maintaining, Supporting and Evaluating** Section 5 focus is on key tasks for closing out a project and transitioning to the new system. Key concepts related to contingency planning, monitoring performance and maintenance of the new system will also be presented.
LEARNING OBJECTIVES	1. Discuss how the System Development Life Cycle (SDLC) is like the Nursing Process 2. Identify each of the phases of the SDLC. 3. Describe the various methodologies used in the SDLC (e.g., waterfall, incremental, spiral, prototyping, agile, RAD) 4. Identify tools and methods used in systems and strategic planning. 5. Identify project management concepts used in systems development life cycle. 6. Identify and define tools and methods used in system analysis to map data flow and workflow. 7. Recognize usability heuristics used in evaluating information systems. 8. Identify ergonomics issues related to information technology. 9. Define software testing terms.

	10. Describe system implementation methodologies. 11. Describe key components in planning education. 12. Discuss systems evaluation, maintenance, and support strategies. 13. Identify key components of contingency and disaster recovery planning.
CREDIT HOURS	**15.5**

MODULE 3: DATA MANAGEMENT & HEALTHCARE TECHNOLOGY

COURSE DESCRIPTION	This module focuses on data standards and standardized nursing and multi-disciplinary nomenclatures. It also introduces various types of databases and concepts related to data warehouses. In this module, big data and data management principles will be introduced. In addition, the module contains data analysis, data visualization, machine learning/artificial intelligence and information retrieval concepts. Finally, the module will introduce basic information and computer science concepts such as computer hardware, software, and networks. There will be a pre-test and post- test for each topic section to measure knowledge acquisition. The module is comprised of four major topics (29% of the exam) based upon the 2022 ANCC Nursing Informatics Certification exam outline. These topics are: • Data Standards • Data Management • Data Analysis, Application, and Transformation • Hardware, Software, and Peripherals
SECTIONS	**Section 1: Data Standards** This section focuses on healthcare data standards, the different types of standards, the organizations that develop and maintain those standards, and the role of standards in enabling interoperability and information exchange. In addition, nursing terminologies will be introduced.

	Section 2: Data Management This section focuses on key concepts related databases including data integration, data warehouses and queries/reports. It will also introduce big data principles and data management concepts. **Section 3: Data Analysis, Application & Transformation** It is essential that nurse informaticists understand the process of data mining and the preparation of data for analysis. In this module, data mining process models and data analysis tools and techniques including data visualization will be introduced. Artificial intelligence and machine learning will be discussed. Since it is also essential for all nurses to possess information literacy and retrieval skills, information retrieval strategies will be introduced. **Section 4: Hardware, Software and Peripherals** In this section, hardware, software, and clinical devices used in the health care environment will be explored in detail. In addition, network key concepts will be discussed. Finally, health care technology trends will be explored.
LEARNING OBJECTIVES	1. Define metadata and the role of semantic representation. 2. Identify standardized nursing and multi-disciplinary nomenclatures. 3. Define concepts related to technical standards (HL7, FHIR, DICOM) 4. Identify key concepts related to the types of databases including data integration, data warehouses and queries/reports (Big data) 5. Recognize data archiving concepts and principles. 6. Define key terms related to data management and healthcare technology. 7. Identify analytics tools and techniques to support operational decision making, quality, and risk management related activities. 8. Define data mining and identify ways to utilize to improve quality of patient care. 9. Identify the visualization principles used to present data (e.g., graphs, charts, images, reports)

	10. Discuss information retrieval methods (e.g., referential data bases, web surfing, literature searches) 11. Identify the purpose and management of hardware, software and clinical devices as applied to the healthcare environment. 12. Discuss healthcare technology trends
CREDIT HOURS	TBD (pending accreditation)

ENROLLMENT

To enroll, go to: **NI Guided Study Group Series Catalog (remote-learner.net)**

ACADEMIC HONESTY

It is expected that students will complete the required discussion forums, knowledge checks, and other assignments as outlined in the module to demonstrate that they have learned the course material. The Moodle learning management system tracks student activity including visits to each page, quiz attempts, activity completion, etc., which can be used to independently validate course completion.

Responses to assignments, quizzes and exams will be based on the student's own work (except for assignments that explicitly include collaboration). It is expected that students will properly cite any references or works that are not their own and honor any intellectual property rights including copyrights and trademarks.

For questions about how to cite academic literature, please refer to:
https://owl.purdue.edu/owl/research_and_citation/apa_style/apa_formatting_and_style_guide/in_text_citations_the_basics.html

COURSE SUPPORT STAFF:

Course support staff ready and willing to assist:

- Kathleen M. Kane, MS, NI-BC, PMP, FAMIA
- Jennifer Kalman, MBA, CPHIMS, FAMIA
- Danielle Marano, MSN, NI-BC, FAMIA

- John Sistrunk, MNA, MCT
- Christina Brech, Med, RD
- Marisa Zamrock
- Leticia Parks, RHIA, MSHI

TECHNICAL SUPPORT

For technical issues with registration, access to course, or Moodle issues, students can use the VHAhi2CertHelp@va.gov or the Technical Support Forum within the course.