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University Of Pathology Informatics Certificate Of Completion Program

Course Program Syllabus

Courses for Completion: 20
Type of Instruction: Online (and Blended where applicable)

Administrative Notes

Office:	ASCP Chicago, 33 W Monroe, Chicago IL, 60603
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Program Schedule

UPI can be accessed until requirements are met, up to three years, unless purchased by your institution, where there is a yearly subscription to the program. We anticipate the average participant will take approximately six-months to a year to complete the informatics certificate program.

Course Description

A new self-paced online certificate program, University of Pathology Informatics (UPI) leverages casebased learning to develop critical knowledge of informatics concepts. UPI is a joint effort between the American Society for Clinical Pathology (ASCP) and the Association for Pathology Informatics (API) focusing on the four laboratory informatics competencies: Information Fundamentals, Information Systems, Workflow & Processes , and Governance & Management.

Overview

UPI is created for residents, fellows, and pathologists, and laboratory professionals, laboratory IT staff, and laboratory administrators. UPI is for individuals participating in laboratory informatics initiatives to enhance quality diagnosis, throughput, and patient safety. UPI utilizes a case-based approach, where you will act as the project leader in developing a pathology informatics needs assessment for a laboratory.

This new certificate program consists of 20 custom courses; 12 core and eight elective courses are equired to earn the certificate. UPI participants will also have access to a wide variety of enduring materials, including Pathology Informatics: Theory & Practice (eBook). After completing 20 required and elective on-demand courses, you will be able to:

- Conduct an informatics audit of existing lab systems including hardware, software, peripherals, and databases
- Create a high-level dataflow diagram of the laboratory network
- Document existing workflow and create a high-level redesign of workflow process in light of a new LIS
- Prepare an executive briefing addressing the challenge of legacy systems, opportunities for process improvement and integration with EMR, workflow impact of a new LIS, and suggestions for next steps

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Course Prerequisite

Complete the first module, Welcome to UPI Certificate & Needs Analysis. This course focuses on the steps involved in developing a needs analysis and executive briefing for informatics tools and systems for the laboratory. It also introduces the University of Pathology Informatics Certificate of Completion program, including details about its instructional approach, curriculum, and requirements for completion.

Key Features

- Enroll in UPI anytime and finish at your own pace
- Engaging online multimedia format
- Residents: Courses correspond with many of the ACGME Milestones in Technology Assessment and Informatics
- Learn from an impressive lineup of respected experts in Pathology Informatics
- Earn 25 CME/CMLE/SAMs Credits
- Receive your University of Pathology Informatics Certificate of Completion and bolster your career standing

Instructional Methods

All online instructional strategies are approximately 90 minutes and consist of a prereading assignment, engaging online multimedia activity, knowledge checks, case studies, and the eBook *Pathology Informatics: Theory & Practice*. Each course also includes a five- to 10-question posttest. You have three attempts to pass the test with a score of 80% or higher. You can earn 1.5 AMA PRA Category 1 Credits™ CME/CMLE, and SAMs credits for each course completed.

Student Assessments

As a UPI participant, you know the importance of continuing education. Self-assessments can be very helpful in determining where your strengths and weaknesses lie. The following assessment will help you determine the areas you will want to work on as you progress through the UPI Certificate of Completion program. The assessment will take approximately 15 to 20 minutes.

This skills assessment is a requirement for completing the first course in the University of Pathology Informatics program. Please review and answer the questions honestly, as this will help determine the areas you will want to concentrate on the most. The results will not be shared with anyone and are for research purposes only. Once you have successfully fulfilled the requirements for the UPI Certificate of Completion, you will be asked to complete this assessment again.

Link:http://survey.highroadsolution.com/votingmodule/VOTING1/f/1034344/7869/?msig=803669208dd64a9ac114713e03519bcb

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Requirements for Certificate

The following are required for award of the UPI Certificate of Completion:

- You must complete 20 courses across four laboratory informatics competencies including Preparing an Executive Brief: Information Fundamentals, Information Systems, Workflow & Processes and Governance & Management. All courses are offered online; however, a select number of pre-approved live sessions will be offered at the API and ASCP live meetings, at additional costs.
- 12 core modules, modules 1-12, are required. In addition, you must also take 8 enduring materials electives. Choose electives appropriate for your individual skill needs to meet the 20 - course requirement.
- To receive credit for online or live courses, you must pass an online quiz with a score of 80% or better within three attempts.

UPI Course Outline

*The courses bolded in **RED** are the required and recommended courses suggested. Please choose electives as needed per your skills assessment.

Welcome to UPI Certificate & Needs Analysis is required and should be taken first:

Workflow & Processes:	**Welcome to UPI Certificate & Needs Analysis**	• **Understand the requirements for the UPI certification program** • **Begin to conduct a Needs Analysis for the purpose of implementing a new Pathology Informatics tool or process for your lab** • **Begin preparing an executive briefing to inform stakeholders about the need for the new tool or process**

Competency Area	Required Course Titles	Learning Objectives
Information Systems	**Introduction to Information Systems (Required)**	• **Define the relevance of laboratory information systems (LISs) to pathology practice and laboratory operations.** • **Define middleware and provide examples of its use in pathology.** • **List differences between LISs and laboratory information management systems (LIMSs).** • **Describe the current functionality of clinical pathology and anatomic pathology LISs.** • **Discuss the need for rapid integration of laboratory information**

Competency Area	Required Course Titles	Learning Objectives
Workflow & Processes	Introduction to Pathology Informatics (Required)	• Define the role of a clinical informaticist, informatician, pathology informaticist and data scientist. • Compare and contrast the differences and similarities of pathology informatics with bioinformatics, health informatics and public health informatics. • Differentiate between the types of informatics and the appropriate application of each type of informatics and the appropriate informatics personnel for different goals and objectives
Information Fundamentals	Laboratory Hardware & Software (Required)	• Describe the core components and functionality common to most LIS software applications. • Explain the design and purpose of databases and • database management systems. • Describe the hardware components normally associated with LIS
Information Fundamentals	Laboratory Networks and Architecture (Required)	• Identify the common components of a laboratory network. • Define the purpose, short-term goals, long-term vision, and potential benefits of the network. • Identify a variety of uses for WANs • Explain different WAN topologies, including their advantages and disadvantages • Identify the potential needs and resources for the development of the laboratory network. • Provide explanation for key components for operating laboratory architecture
Information Fundamentals	Fundamentals of Databases (Required)	• Define what databases are and explain how they are used in the laboratory environment • Explain how databases improve productivity across disciplines • Describe the main characteristics of relational databases • Describe the typical databases designs and schema of Laboratory Information Systems • Explain how Structured Query Language (SQL) is used in the lab • Discuss the advantages and disadvantages of modern NoSQL databases and their potential use in the lab

Competency Area	Required Course Titles	Learning Objectives
Information Fundamentals	Interoperability of Data and Standardization of Terminology (Required)	• Recognize the need for interchangeable data • Identify standardized terminology that can support interoperability
Information Systems	Health Information Standards in Pathology (Required)	• Explain the importance of healthcare information standards • Discuss the process of creating healthcare information standards • Identify organizations responsible for creating healthcare information standards • • Examine the issues affective progress and adaptation of healthcare information standards
Information Fundamentals	Lab Middleware Interfaces (Required)	• Discuss important interactions between the laboratory and outside information resources, such as Electronic Health Records, billing systems, etc. • Describe the functionality of interface engines that facilitate communications without side systems. • Explain how middleware systems facilitate the operation of laboratory instruments, and the conversion of instrument output into finished results for reporting by the laboratory. • Itemize how each of the CAP Today-enumerated middleware functionalities provides basic building blocks for result validation.
Workflow & Processes	Patient & Asset Identification Tracking Systems for Patient Safety (Required)	• Explain who IS this person? Biometric Identifies (and why text does not work). • Examine linking that identification to a token (wristband barcode of RFID). • Examine linking from a token to specimen identification in the OR, when drawing blood, administering medication, or beginning a diagnostic or therapeutic procedure. • Review steps to identify specimens into the lab.

Workflow & Processes	Patient & Asset Identification Tracking Systems for Workflow (Required)	• Discuss how patient and asset identification tracking systems laboratory impact workflow • Discuss how incremental classes and trigger events can be used to track the time each process takes and location of assets • Discuss how user software user interfaces can be used to track workflow throughout the laboratory • Describe how color coding and carrier constructs can be used to classify specimen type and priority • Discuss the various types of technology designed to improve the efficiency of workflow in the lab

The Executive Briefing course is required for the Certificate of Completion from UPI.

What is an Executive Briefing?

The executive briefing assignment is the final activity in the UPI certificate program. It is to be prepared using a PowerPoint template during the last required module, Governance & Management: Preparing the Executive Briefing. Presentation templates are provided with this course.

Governance & Management	Preparing the Executive Briefing (Required)	• Prepare the components of an informatics needs analysis including: A. Description of laboratory Informatics B. Identification of current hardware, software, networks and databases C. Application of clinical information standards with and without the laboratory D. Identification of possible area of E. improvement such as systems updates, standardization or new work processes F. Provide recommendations for next steps • Present an informatics needs analysis to executive level staff

To engage learners, certificate participants have been cast into the role of a laboratory employee who has been assigned to research and develop a pathology informatics executive briefing for their supervisor. You were introduced to Dr. Stat the Laboratory Medical Director through an email thanking you for taking on the assignment.

As a best practice, Mary, Dr. Stat's Pathologists' Assistant (PA) has recommended that you gather data as you complete each module for the certificate program. She has suggested that you:

- Use what you have learned by exploring how your organization measures up to the examples and best practices discussed.
- Have fun building your network informatics thought leaders through conversations with laboratory personnel addressing standards, programming, HL7, and networking as they pertain to your own workplace.
- Remember that, as described in the first topic, this is an executive briefing, not a long paper. You are expected to gather data as you complete your assignment to populate an executive briefing slide template (provided).

How do I submit my Executive Briefing?

Submitting your Executive Briefing is easy! The Dropbox allows participants to upload papers, work products, and other documents for consideration. As part of the UPI Governance & Management: Preparing the Executive Briefing course, you are required to upload your files.

- Please use the Dropbox on the applicable screen to upload your Executive Briefing. You can upload a maximum of 5 files in each section
- Once you have finished uploading your files, click Submit to submit them.
- Not ready to submit this portion of the assignment? If you only upload some of your files, you can click Save to save your work so you can return to it later.

Electives

Competency Area	Required Course Titles	Learning Objectives
Information Fundamentals	Supporting Digital Pathology Across the Enterprise (enduring)	• Understand the breadth of activity meant by digital pathology • Describe the shortcomings of file and folder–based hierarchical storage solutions • wPresent the value of an interfaced enterprise-wide multimedia management solutions that can be used for all aspects digital pathology
Information Fundamentals	Pathology Informatics for The Practicing Pathologist and Laboratorian (enduring)	• Understand the basic functioning and lifecycle of the LIS, and how the LIS communicates with the EMR and other hospital information systems • Comprehend how imaging in pathology has evolved over the past generation and anticipate how digital images will be most effectively used in future pathology practice • Recognize that evaluating current workflows in pathology is the first step to effective implementation of modern high-technology

Competency Area	Required Course Titles	Learning Objectives
Information Systems	Computational Pathology (enduring)	• Defining computation pathology • Outlining the teaching, research, clinical and workforce aspects of computational pathology. • Discussing the approach the University of Pittsburgh has taken to embrace computation pathology. • Pathology Informatics approach to support computational pathology growth.
Information Systems	Digital Pathology: Imaging Systems, Practice & Guidelines (enduring)	• Understanding what is essential for pathologists to know about Imaging Basics. • Understanding what is available for pathology use with Imaging Systems. • Outlining which applications are being used with Digital Pathology Practice. • Discussing what guidelines are important in pathology practice.
Information Systems	How to Validate a Whole Slide Scanner System (enduring)	• Be able to design a validation study for a whole slide imaging system that meets CAP guidelines and is consistent with current practice. Understand how many samples are required, how to validate for a variety of specific intended uses, and the concept of a “wash-out” period. • Know how to determine the concordance rate between standard microscopy of glass slides versus whole slide scanned images. Be familiar with acceptable concordance rates between glass versus digital pathology. Understand the difference between intra-observer and inter-observer variability. • Understand when modifications to a whole slide imaging system require a revalidation. Be familiar with conditions in which a limited validation study may be performed
Information Systems	In-Sourcing Digital Consults: Is it For Me? (enduring)	• Participants will distinguish the types of digital consultations that may be performed using available technologies. • Participants will recognize the challenges and barriers which may be encountered in setting up a successful digital consult practice. • Participants will differentiate between the different approaches to realizing a digital consultation service.

Competency Area	Required Course Titles	Learning Objectives
Information Systems	Update on Information Technology Trends That Will Greatly Impact the Practice of Pathology (enduring)	• Participants will be able to recognize the current most important trends in information technology and informatics, as they apply to the practice of laboratory medicine and pathology. • Participants will gain a better insight as to the specific utility of each canvased technology and the corresponding threats of not considering deployment of such technologies. • Participants will be able to generate a conceptual framework that will both assist in the informed selection and deployment of candidate technologies in their own practice settings.
Information Systems	Optimizing Test and Procedure Selection and Interpretation with Integrated Diagnostics and an Integrated Diagnostics Server (enduring)	• Explain the concept of integrated diagnosis and why the increasing degree of sophisticated diagnostic reporting is leaving a gap in the ability of clinicians to assimilate and interpret all of this new diagnostic information about their patients. • Describe the organizational changes that are necessary in pathology and radiology in order to foster close collaboration in the development and operational control of an Integrated diagnostic server. • Demonstrate in practical terms the value of integrated diagnostics and an integrated diagnostics server by citing examples of patients where this approach has resulted in tangible patient benefits in terms of faster, less expensive, and higher quality diagnoses
Workflow & Processes	Clinical Decision Support (enduring)	• Define the facets of clinical decision support in the laboratory setting. • Explain the importance of clinical decision support to pathologists and laboratory professionals. • Apply strategies for making the best use of clinical decision support. • Identify solutions for successfully implementing clinical decision support.

Competency Area	Required Course Titles	Learning Objectives
Workflow & Processes	Data Analytics in Pathology (enduring)	• Identify the best data and metrics for the clinical enterprise. • Understand the importance of patient-benefit centered metrics. • Identify the limitations of testing guidelines and how to appropriately measure variation.
Workflow & Processes	Informatics and Connectivity Solutions to Enhance Point of Care Testing (enduring)	• Discuss the current and future states of point of care testing (a.k.a beside or near patient testing). • Discuss the impact that regulatory, informatics, IS/IT, and connectivity issues have on POCT today.
Workflow & Processes	Molecular Pathology Informatics (enduring)	• Discussing the emergence of molecular oncology, specifically the Philadelphia chromosome. • The outcome of pending and initiating clinical trials for testing the idea of genotype-directed therapy as a general approach. • Outlining major implications for the field of molecular pathology and informatics. • Discussing Next Generation Sequencing and the scope of genomic data.
Workflow & Processes	Digital Cytopathology: Digital Imaging-Where are We and What's Next? (enduring)	• Participants will be able to compare a variety of digital cytology technologies currently available for implementation and be able to distinguish optimal solutions for their current pathology practice. • Participants will have the ability to assess their current workflows, recognize opportunities for implementation of digital tools, and understand what is required to begin using these tools in their current practice. • Participants will be able to evaluate new developments in digital imaging and predict which emerging technologies will impact their practice in the near future.
Governance & Management	Practical Use of Business Analytics: Justifying Lab Services of the C Suite (enduring)	• Define analytics in the context of pathology informatics. • Define value in the context of pathology informatics. • Describe the future financial model of pathology informatics organizations. • Explain the role of informaticians in the new financial model of pathology informatics organizations. • Demonstrate how choosing the right tests for patients are beneficial to informaticians.

Governance & Management	How to Evaluate and Implement Business Analytics for Your Laboratory (enduring)	• Determine the potential value and benefits of business analytics for your laboratory. • Assess and evaluate the characteristics and capabilities of various BA alternatives. • Describe the key differentiators in selecting the best fit business analytics system for your laboratory. • Review implementation considerations and strategies.

THIS SYLLABUS IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.