An Informatics Course On Applied Clinical Information Systems

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Abstract

In the ongoing evaluation of our informatics curricula, feedback from alumni indicated a need for a more practically oriented course in clinical systems. This poster presents our experience developing and teaching such a course that seeks to provide students with the principles, concepts and skills needed to plan, implement, and maintain clinical systems.

Background

At Columbia’s Department of Biomedical Informatics, we have continually refined informatics curricula for our masters and doctoral programs. Recent feedback from our programs’ alumni, especially those exploring careers in non-academic settings, indicate that although they feel they are well prepared in the theory and methods of informatics, they would substantially benefit from additional exposure to applied aspects of clinical systems. With knowledge about how clinical systems work together and how they are budgeted, implemented and managed, our students will be able to assume leadership roles when they are employed in healthcare information technology (IT) settings. In the fall of 2006, we offered for the first time a course entitled “Applied Clinical Information Systems,” which sought to provide such exposure.

Description

Our course seeks to provide students with key principles, terminologies, and skills needed to plan, implement, and maintain clinical systems in the current healthcare environment. Topics are selected according to the following goals:

\begin{itemize}
  \item Understand the strategic importance of IT in a healthcare organization
  \item Appreciate the various architectural dimensions and standards that form the foundation of electronic medical record systems
  \item Understand the requirements for efficiently operating production systems
  \item Learn the basics of implementation project management
\end{itemize}

Content

The course is presented in units of related lectures. An important goal is the acculturation of our students to the world of healthcare information systems. To that end, we maintain throughout the course a running list of IT vocabulary terms, key individuals, and organizational structures central to clinical systems. Subjects covered include the governance of and strategic planning and budgeting for IT efforts, architectural aspects of electronic medical records, healthcare integration middleware, systems operations and monitoring, project management, the legal and regulatory aspects of clinical systems, and information security risk assessment and controls. Key skills taught to the students and reinforced via homework assignments include preparing and justifying IT operating and capital budgets, understanding data interface specifications, and preparing project plans.

Course Evaluation

In an end-of-semester course evaluation, 11 out of 12 students responded. On a scale of 1 (Poor) to 5 (Excellent), the following mean ratings were obtained:

\begin{tabular}{|l|c|}
  \hline
  amount learned & 4.27 \\
  developing specific skills and competencies needed in the field & 4.09 \\
  organization and continuity & 4.18 \\
  overall quality & 4.18 \\
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Conclusion

We identified a need for a more practically oriented clinical systems course within our informatics curriculum. The inaugural semester of the course was very well-received. Future directions under consideration include tying the topics together around a single mock application implementation.

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