

IUPUI Graduate Office Form for Creation of a Graduate Minor

Date: 05/15/2015

Institution: Indiana University

School: IU School of Dentistry

Department: (optional)

Restorative

Location: On Campus

Is 50% or more online?

Yes ☒ No ☐

Official Name of Minor: (required)

Dental Informatics

Projected Semester and year of implementation*:

Fall 2015

Academic Career: (required)

GRAD

*This does not guarantee the minor will be approved by the semester requested. It must still go through the appropriate approval process

Please explain limitations to this minor, if any:

None

Brief Description: (required)

Dental informatics is an emerging field due to the rapid adoption of electronic health records (EHRs) by dental practices and academic organizations in the US. However, most dental providers are ill prepared to take on the complexities and challenges of managing health information technology (HIT) in their office. Currently, only a handful of health informatics graduate training programs exist, who apply informatics principles and methods to dentistry. Historically, dentists have practiced separately from mainstream healthcare and therefore, their workflow and information needs are unique and different from other healthcare providers. The proposed minor in dental informatics will bridge this gap in knowledge and create well-educated and qualified dental informaticians to work in the field of dentistry and other related professions such as public health, nursing, medicine and rehabilitation sciences to improve oral health and care.

The objective of this program is to provide opportunities for doctoral students and Masters students in the Indiana University of School of Dentistry to learn and acquire skills on applying the principles of informatics to use HIT effectively in their academic careers or clinical practice and improve patient outcomes and oral health. This minor in dental informatics also offer opportunities for Indiana University or Purdue University doctoral or Masters students in disciplines other than dentistry to apply informatics methods and principles to utilize HIT in dental settings to improve patient care; and to analyze and interpret dental clinical and research data to improve patient and treatment outcomes.

Rationale for new minor: (required)

Technology has increasingly played a major role in making dental care safer and comfortable for the patient. Prior technological innovations range from developing high-speed cutting instruments that are highly efficient for restoring decayed teeth, to advanced imaging technologies that drastically reduce dental procedure time from multiple to single appointments.

However, dentistry continues to struggle with improving access to care and reducing high dental care costs. Today, dentistry is on the verge of an information revolution with the potential to transform the

delivery of dental care. Dental informatics plays a key role in enabling this change, so that dental care is accessible and affordable to all people. This could be driven through informatics initiatives, such as data analytics to assess treatment outcomes; design of clinical systems to support patient care, and facilitate care coordination and communication across multiple care providers; and leveraging digital media to educate and empower patients to make the right decisions. The last decade has seen a rapid adoption of electronic health records (EHRs) by dental practices and academic organizations in the US. Today, more than 70 percent of US dental practices manage at least some clinical information electronically and at least 15 percent of them maintain complete paperless records. Furthermore, about 80 percent of US dental schools use EHRs for patient care. This transition from paper to digital records is generating massive amounts of data that could be used to generate evidence to develop evidence-based preventive management guidelines for various oral diseases, as well as assess treatment outcomes. Moreover, the clinical use of dental EHRs has raised users' awareness of the need to improve these systems to support their work and to enhance quality of patient care. Importantly, dental care providers are increasingly encountering patients who shop for value and quality because they can access relevant information through online resources, rating services, and social media.

While medicine has a long and rich history of applying informatics for research and clinical purposes, in dentistry, clinical informatics is still in its infancy. A key reason is the lack of a sufficient number of well-educated and qualified informaticians working in the field of dental informatics to achieve these goals. As a result, most dental academic organizations, HMO networks and dental EHR vendors have information technology professionals, yet very few qualified informaticians. Dental schools also have limited personnel to educate predoctoral students and residents about informatics. The proposed minor in dental informatics aims to close this gap by training graduate students in the IU School of Dentistry and other IU graduate schools on the fundamental principles of health informatics and its application in dentistry to improve patient care outcomes and to facilitate research and education.

The proposed minor will require coursework totaling 12 graduate credit hours. This would include the following courses, two courses from the Indiana University School of Dentistry and two from the School of Informatics & Computing, IUPUI. Based on the program of research, the students can substitute core course with health or dental informatics courses at the 500 level or above, such as independent studies with the permission of a student faculty advisor and the Minor Program Coordinator.

1. DENT-R-978 (in review) Introduction to health information technology in dentistry
 - This course introduces the fundamentals and applications of informatics in dentistry, to evaluate and manage dental clinical systems and to manage data to facilitate analyses and interpretation to assess patient and treatment outcomes.
2. INFO B530 Foundations of health informatics
 - This course will introduce the foundation of health informatics. It will review how the information sciences and computer technology can be applied to enhance research and practice in healthcare. The basic principles of informatics that govern communication systems, clinical decisions, information retrieval, telemedicine, bioinformatics and evidence-based medicine will be explored.
3. INFO B581 Health informatics standards and terminologies
 - Health information standards specify representation of health information for the purpose of communication between information systems. Standards not only standardize data formats, but also conceptualization of underlying data structures. The course will also explore data standards, domain analysis, conceptualization, modeling, and the methods and tools commonly used are explored.
4. DENT-R-979 Research design and methods in dental informatics (3 credits) **New course**
 - The purpose of this course is to apply the concepts they learnt in DENT-R-978 to conduct a one semester research project. The student will be asked develop a research question or a problem statement, plan, develop, conduct, and write a report on the project. This course will encourage students to think and apply the concepts they learnt in DENT-R-978. It also serves as an early introduction to dental informatics research.

Course offerings for minor in dental Informatics

1. DENT-R-978 Introduction to Health Information Technology in Dentistry (3 credits) 2. INFO B530 Foundations of Health Informatics (3 credits)	1. INFO B642 Health Informatics Standards & Terminology (3 credits) 2. DENT-R-979 Research design and methods(3 credits) new course
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Contact Information**Contact person for this minor: (required)**

Thankam Paul Thyvalikakath

Contact person's email: (required)

tpt@iu.edu

Contact person's phone number: (optional)

317-274-5460

Student advisor (if different than above):

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Student advisor's email:**Student advisor's phone number: (optional)**

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Comments:

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