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Biomedical Informatics Program – New and Growing

BY LOIS THOMSON

According to Dr. Jennie Lou, Biomedical Informatics "is the field of integrating information technology to health care; you combine information technology in a health setting. It's that simple," she said, then chuckled, "but it's really not."

No, Biomedical Informatics is not simple, but it is a growing field; and Nova Southeastern University offers a Biomedical Informatics Program for those seeking a career in this area. Dr. Lou is the program director and said that the idea is "an emerging discipline that deals with the use of information technology at three levels."

She explained that the first is the molecular level, or bioinformatics, which integrates such points as gene sequencing research and pharmaceutical development in an effort to change the way biological data is stored, retrieved, organized, and analyzed – ultimately generating new methods for producing valuable biological knowledge. "It's designed to make personal, precision medicine. In fact, that's the word to use these days – precision medicine."

The second level is the individual patient level, or clinical informatics, which aims to manage an individual's health data – how they are stored, retrieved, shared, etc. – with the goal of providing safer, more efficient health care. "An example would be using electronic medical records to improve the outcome, to increase patient safety," Dr. Lou said. "We do e-prescribing, we integrate clinical decision support systems to facilitate physicians' decision-making. We use different apps to engage more patient participation. That is clinical informatics at the individual level."

The third level is the population level, also called public health informatics. "That's where we use big data to predict disease outbreak, to perform disease surveillance, and to mobilize different resources at the national/international level."

Dr. Lou, who as program director created and oversees all of the curriculum, said students in the Biomedical Informatics Program study all three levels. "We cover all of these because it's such a broad area of discipline; and the students are from different backgrounds – they come into the program and sort of find their own niche. We have a set of required curriculum for them to take, and then they can take electives to meet their own learning needs for different career paths."

She continued by saying that program graduates are able to find careers in numerous fields, depending on their interests. Positions could range from chief medical information officers, to trainers, system analysts, project designers, researchers, and vendor representatives, working in settings such as hospitals, health systems,



Dr. Jennie Lou

health care agencies within state and federal governments, pharmaceutical companies, and academic institutions. For example, Dr. Lou explained that clinical analysts could work with different hospitals and physicians, establishing security and different levels of access to the electronic medical records (EMR) system. Or they could launch a new EMR system in a different hospital, making sure the two systems are able to "talk" to each other. Some will train the users, because every time a new EMR is launched or updated, a considerable amount of training will be involved.

"If you are representing a vendor," she went on, "you will be going out to assess the workflow of a specific clinic or major health setting, and identify what the software can do for the system. And some will be pulling the data to analyze the deficits – for example, a group of students did a project at the Cleveland Clinic as part of their practicum where they actually identified the problems in the workflow of the discharge process, and made recommendations to improve the process."

The interest in Biomedical Informatics has increased to such an extent that Dr. Lou said Nova Southeastern University started the program with one student in 2005, and the number has now grown to 200. "We're one of the earliest programs in the country to offer it. We have established a graduate degree, which is a Master of Science in Biomedical Informatics, plus graduate certificates in public health informatics and in medical informatics. With the nursing school we have established an MSN with nursing informatics, and we just launched pharmacy and biomedical informatics degrees."

She said the 43-credit program can be finished in a little over two years, depending on how many courses/credits each individual takes per term.

The majority of students in NSU's Biomedical Informatics Program are working professionals, and they are given up to five years to complete the degree. The curriculum can be completed entirely online and some courses are offered on campus, enabling working professionals to complete the career transition without disruption. While a background in health care or computer science is preferred, pre-requisites will bring students up to speed. "Many of our students don't have any background in health care or computer science and they do very well."

Biomedical informatics is an exciting field that is sure to see continued growth in the future.

For more information, call 954-262-1032 or visit <http://osteopathic.nova.edu/msbi>