

# FINANCIAL ENGINEERING NEWS

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## Kent State University

### Balancing Theory and Practice is Key to Master's Degree



By Duncan Wood

How to resolve the tension between theory and practice may seem like a fairly abstract debate – the kind of thing that program directors might get into while polishing off a bottle of port after dinner – but for the companies who need skilled staff to guide them safely and profitably through today's complex financial markets, it's not abstract at all.

Mark Holder, director of Kent State University's Master of Science in financial engineering, re-calls a statement made by one of the program's advisory board members: "We don't want quants that can't trade."

Banks and trading shops have been through a learning curve of their own in recent years. They've discovered that if you have a desk of experienced traders with poor technical skills, it doesn't help much to supplement them with a group of quants who have no experience but are technical virtuosos. Instead, they want it all.

"If you take a firm like Morgan Stanley or Goldman Sachs, they employ financial engineers to work in their quantitative research area – and they hire a relative handful of these people every year. But they've also realized that they've got hun-

dreds of people trading derivative products, and they'd like them to become a lot more skilled. They'd like them to actually have financial engineering skills – and that's the kind of market we've chosen to target."

In order to effectively target this market, Kent State involved its advisory board from day one. "We asked for their input when designing the coursework and the content to make sure that we were going to be producing graduates that they wanted."

The advisory board is still regularly involved. It meets with program staff twice a year, and also plays a part in a biennial review of course content to help ensure that the program stays relevant.

Students themselves also have plenty of contact with practitioners, says Holder. The program invites industry speakers every Friday. "It's a required part of the program that the students be there and work with these people," he says.

The result is a program that Holder says "leans towards the practical side. We still cover the math necessary to implement

the models, but we are a little less theoretical than some of the other programs."

So far, it seems to be paying dividends. Two classes have graduated from the program, with students securing placements in proprietary trading shops in Chicago, banks in New York and one graduate landing a post with AIG in Shanghai. But the most avid

consumer of the program's talent has been a local retail and commercial bank: KeyCorp.

Despite being fairly small in terms of assets (when compared to top U.S. banks, at least) Key has a reputation for ambition and sophistication. It's expected to be one of a handful of U.S. banks

that applies the new Basel Accord's advanced methodologies alongside the internationally active lenders for whom it will be mandatory.

"They've hired seven of our students now," says Holder. "It's been a way for them to get hold of talent which they'd ordinarily have to try and grab out of New York or the Chicago area. They hired four in one shot and were so enamored with them that they came back for more."



Mark Holder

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The 12-month program requires students to complete 12 courses and is now partway through its third class. Holder explains that it breaks down into three component parts, with the majority of courses taking place within Kent State’s finance department. Four courses (including classes on stochastic theory and computational finance) are run out of the mathematics department, and the final course – on time-series analysis – is provided by the economics department.

The close link between the Master of Science and its advisory board also resulted in one of the program’s more distinctive features – a course that looks specifically at legal, regulatory, accounting and ethical issues for financial engineers.

Despite the fact that legal and regulatory issues have tended to be one of the big drivers of innovation in financial engineering (and one of the key sources of ethical concern for practitioners) most programs lack a course that is dedicated to these issues. Holder believes the course is “pretty unique.”

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Holder himself is a Kent State alumnus. He completed his doctorate at the school and was working at the Chicago Board of Trade (CBOT) as the exchange’s group manager for re-search and product development when a series of chance events generated enthusiasm at Kent State for a financial engineering program.

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“Basically, a finance professor here, now emeritus, was doing some work on derivatives and ran into some particularly difficult math problems. He got hold of somebody in the math department who became

really excited when he saw that some of these techniques were actually being applied. From there, they started thinking about running some courses in this area, or maybe even a program.”

Kent State called on Holder and asked if he’d consider returning to his old school to set up the program. He agreed, on the condition that he was allowed to maintain his old business contacts. “I thought I could have one foot in the classroom and one in industry,” he says. “But I wasn’t looking for a job at the time, and I wouldn’t have gone to any other school.”

From tiny acorns, of course. Kent State is currently setting up a Financial Engineering Center to unite the different elements of the discipline now present at the school. Holder freely admits that the idea of such a center being based in the relative wilds of northeastern Ohio might seem “a little strange,” but he believes the school will overcome any disadvantages associated with its location by way of the twin blessings of electronic trading and cheap flights to Chicago and New York.

The center will house Kent State’s financial engineering program with a trading floor that boasts live exchange feeds, a set of certificate education programs that it is developing, a new journal titled *The Review of Futures Markets*, for which Holder is the editor, and an annual symposium, first established by the CBOT in 1947, and now run by Kent State. ■