TRANSFORMING IDEAS INTO ACTION Think and do

To overcome the great challenges facing your business, you need more than good ideas. You need bold, actionable solutions. That’s where NC State’s solution-driven approach comes in — bringing together the best minds to think courageously and put their ideas to work in the real world. That’s thinking and doing. At NC State Poole College of Management, we take that approach by working hand in hand with the business community to prepare today’s students to be tomorrow’s leaders in a technology-rich global marketplace.

STRENGTHENING DATA ANALYTICS SKILLS FOR TODAY’S GLOBAL MARKETPLACE

The advancement of technology for capturing information has led to the expectation that “Big Data” will dramatically alter the business environment. However, technology is only an enabler of aggregation and analysis. Many firms struggle with the conversion of aggregated information to business knowledge and insights. To do this effectively, critical thinking and decision-making skills must be developed that allows businesses to exploit these technologies. In addition, the organization must have the appropriate culture and expertise to fulfill the promise of “Big Data.”

Explosion of Big Data

- 40% projected growth in global data volume per year
- 4 zettabytes of data in 2013 worldwide (1,000,000,000,000,000,000,000 bytes)
- 500 million tweets per day
- 1.2 trillion Google searches per day
- 6 billion mobile phones in use today (87% of the world’s population)
- 500 million photos uploaded every day

Eighty-five percent of Fortune 500 companies will be unable to exploit big data for competitive advantage, but fifty-eight percent see transitioning from data to insight as their big challenge.

Big Data is just one aspect of the expanding data analytics field. Most organizations begin with structured data before jumping to unstructured data analysis capabilities by leveraging Big Data technology. Therefore, today’s professional needs to be able to develop, interpret and present structured and unstructured data.

NEED FOR TALENT and AN OPPORTUNITY FOR NC STATE

In the past year, 4.4 million jobs were created around big data. McKinsey Global notes that the lack of “analytical and managerial talent necessary to make the most of big data is a significant and pressing challenge.” Our corporate partners are coming to the college and expressing intense and immediate need for employees with decision-driven analytical skills. Those partners come from a wide range of
industries but share a common need to leverage the extensive information coming from today’s highly sophisticated technology platforms to identify opportunities and solve challenges with their business models.

NC State’s Poole College of Management created a task force of faculty to develop programs to address this universal industry requirement. After extensive review, the college is moving forward in 2015 with both short and long term goals to make decision-driven data analysis a key component of the Poole College experience. In the short term at the graduate level, a Decision Analytics Certificate will be introduced this fall in the MBA program and in 2016, and a new data analytics course offering will become a part of the Master of Accounting program. At the undergraduate level, beginning fall 2015 all undergraduate students, no matter their major or concentration, will be provided the opportunity to complete a 15-hour data analytics honors program. In the near future, 9 hours of the 15 hours will be required for all undergraduate students with the remaining 6 hours offered as an elective option with honors credit. The goal of these courses is not to make our students “data scientists.” Rather, the courses will provide students knowledge and hands-on skills of critical data analysis issues and tools to analyze large, complex sets of data so that they can understand and interact with data scientists they might employ to solve business challenges.

An initial group of 30-40 top Poole College undergraduate students, identified by faculty, have been invited to participate in the first pilot program this August. Over the long term, the goal is to have all Poole College students master data analytics skills.

THINK AND DO MODEL

Maintaining our legacy of Think and Do, the undergraduate data analytics program intends to involve both academic course work to build skill and knowledge (Think) and an Analytics Practicum that would build student experiences solving existing business problems (Do).

The program leverages three existing courses that are being modified or redesigned to best deliver relevant data analytics skills and include two new courses to drive home the application of the students’ new knowledge and skills. The faculty will work with business partners to create a significant practicum course. In this first pilot year, coursework would include slightly modified or redesigned versions of the following:

1) **BUS 340, Information Systems Management**: Fundamentals of information systems development and use in organizational setting and how they provide the foundational tools for extensive data analysis. Information systems (IS), concepts, hardware, software, telecommunications, database management. IS development, applications and management in telecommunications, database management, various business processes, global issues, security and ethical challenges. Exposure to sophisticated data analysis software tools.

2) **BUS 350, Economics and Business Statistics**: Introduction to statistics applied to management, accounting, and economic problems. Emphasis on statistical estimation, inference, simple and multiple regression, and analysis of variance. Use of computers to apply statistical methods to
problems encountered in management and economics. Coverage of core statistical concepts and methods that are available in most sophisticated data analytics software.

3) **BUS 443, Business Analytics**: This is an introductory course in Business Analytics. It focuses on the theoretical and practical aspects of how businesses model existing data to predict the probability of future events and the values of key performance indicators. It uses the methods and tools of science to drive business decision making. Students will learn prescriptive, predictive, and descriptive techniques and tools. Topics will include statistical and mathematical modeling, data visualization, optimization, risk simulation, data mining, and decision analysis. Hands-on exposure to data analytics tools, including more complex Excel options, provide the foundation for the course.

4) **Two other Honors Level 400 courses**: one project-based and one Practicum course. The students will begin with a project-based class using structured data sets and sophisticated data analytics software (e.g., a variety of SAS tools) solving business issues in a variety of business functions (i.e., accounting, supply chain, finance, human resources, and marketing). The Practicum course will involve applied learning to address real business issues. A team of 4-6 students would be paired with a business unit leader or sponsor to work together on pinpointing a business issue/risk to address with analytics; confirming the information needed to solve the issue; and access to data and tools. The practicum course would culminate in the student team, similar to a consulting model, presenting the implications from the data analysis to management.

**INVESTING IN THE POOLE COLLEGE OF MANAGEMENT Partner for Results**

NC State Poole College of Management is working with select corporate partners for the pilot launch of the data analytics program. This journey together allows business executives to have a chance to inform curriculum development, put high-performing students to work on company data analytics issues, and have recruiting access to a generation of uniquely training business graduates.

Partner organizations are investing seed funding to assist in launching the program and are participating in the pilot practicum. In return, participating organizations will receive results from the practicum, participate in evaluation of the project work, and have the ability to help shape the data analytics program going forward.