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***APPLICATION OF OPTIMIZATION METHODS TO BACELORS  
DEGREE PLANNING***

***Presented by***

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***DEEM Praxis Defense***

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***Caruth 384***

***Abstract:***

In 2010, SMU adopted a new curriculum, the University Curriculum (UC), to ensure undergraduates satisfy a diverse set of student learning outcomes that enhance the depth and breadth of their undergraduate experience. Given the time required for modification and certification of several courses to satisfy the new student learning outcomes, there were limited opportunities for several cohorts of SMU undergrads to meet all the UC criteria as originally proposed, necessitating exemptions to promote on-time graduation. This study uses optimization techniques to systematically assess the impact of the UC on Management Science, Economics and Electrical Engineering majors. It also investigates the impact of UC on Management Science and Economics Double Major as well as the 4 + 1 Engineering Masters program. Finally the model explores exemptions that may be considered to further enhance adoption of the UC while mitigating unintended consequences on increased course load and degree completion time.

In addition to the UC model, this study also proposes a scheduling model that is optimized to enhance on-time graduation in 4 years. Given that only one in two students at US private institutions graduate in 4-years, the model seeks to address delayed graduation resulting from

inefficient scheduling of classes. The model is applied to Management Science undergraduates but can be extended to other departments and aggregated university wide. The scheduling model aids in overall capacity planning and provides insights into scheduling bottlenecks that could be examined to maximize the number of students graduating in 4 years.

This praxis quantifies the economic value and cost savings that can be realized by adopting optimization methods to aid in academic planning.

***Bio:***

Tayo Olabumuyi is a doctoral candidate in Engineering Management with the Department of Engineering Management at Southern Methodist University in Dallas, TX. He completed his MEng and BS from The University of Arizona in Electrical and Computer Engineering. He also holds a post-baccalaureate certificate in Marketing from The Wharton School of the University of Pennsylvania. He has worked in the semiconductor and information technology industry as a Rotation Engineer at Freescale Semiconductor, Field Applications Engineer at Texas Instruments, and Technical Sales Specialist at IBM. Tayo is based in Houston and currently manages the cloud and datacenter business in his current role as a Solution Sales Specialist for Microsoft's corporate accounts in the Gulf-coast District.

***Everyone invited and welcome!***