Time Scales seminars presented by Boehner to promote book

Dylan Jones
Guest Writer

On Wednesday, September 21, mathematics professor, Dr. Martin Bohner, hosted a seminar concerning the subject of time scale calculus. It was held in the basement of the Rolla Building. However, Bohner was not the sole presenter at the seminar, in fact, scholar, and graduate student, who goes by the name of Ozkan Ozturk, was the chief speaker. The gentleman was noticeably anxious about the presentation, but handled himself very professionally and was indeed somewhat of an expert on the topic, helping anyone with questions and concerns.

Ozturk discussed the basic concepts of time scale calculus for the full 50 minute window of time he was given by Bohner. If time permitted, however, Ozturk would have discussed more on the subject, but unfortunately had to make do with the allocated time given. The 50 minutes allotted may seem like a sufficient amount of time for a seminar focusing on "basic concepts," though, time scale calculus is something many people have no prior knowledge of and is rather complex, especially for those just hearing or learning of its existence. Most people outside of the seminar

replied with a simple "What's that?" when asked if they knew what time scale calculus was.

For those who do not know much about the history or background of time scale calculus, it is a new concept to be introduced into the world of mathematics. It was officially introduced to the rest of the world by a German mathematician named Stefan Hilger in 1988. Though, similar ideas and concepts are said to be traced back some time before this. The formal definition of a time scale, as given in Bohner's book entitled, Dynamic Equations On Time Scales, is "an arbitrary nonempty closed subset of the real numbers." According to the same book and many other books written on the same subject, the purpose of time scale calculus is to unify the theories of difference equations and differential equations. In other words, it is to bring together the continuous and discrete into one harmonized, complete system of mathematics.

The first topic presented by Ozturk was the operations on time scales and classification of points on a number line. These two concepts are the very basis and foundation of time scale calculus. Ozturk went on to demonstrate how to perform derivatives, which are actually called either

delta derivatives or Hilger derivatives, with the latter named after Stefan Hilger. From there, he promptly continued with the explanation of time scale integrals, which are technically called delta integrals. The delta integral is mathematically defined by Ozturk as the anti-derivate with respect to the delta derivative. He illustrated different theorems associated with delta derivatives and delta integrals as well as providing examples and proofs for the complex subset of mathematics that is time scale calculus.

If anyone is perhaps interested in furthering their knowledge on the topic, Bohner has a listing of his seminars on his personal S&T website, on which he provides information such as the speaker, the topic, and the date of the seminar. There will no doubt be more seminars on the same subject and other topics that relate to time scales as well. If that is not enough to satisfy you, Bohner has generously provided the first chapter of his book, Dynamic Equations On Time Scales, for free on his personal site as well. The first chapter of this book includes many of the basic and integral concepts of time scale calculus that graduate student, Ozturk discussed during his 50 minute presentation.

Source Code featured as part of Leach Theatre's Free Film Series

Kaleb Ragan
Guest Writer

Students at S&T are well aware of how boredom can rear its ugly head at random times throughout the semester, and with few legal outlets to help relieve boredom, it can cause a lot of stress. However, the various clubs on campus do their best to relieve this oppressive boredom by hosting events, and one such event is the Free Film Festival.

Tuesday nights in are the hosts to the festival, with the movies being presented in the Leach Theatre in Castlemann Hall located on the edge of campus. The festival goers break down whatever movie is on the agenda for the evening, discussing the plot and the originality of the film. This week's film is a science fiction thriller by the

name of "Source Code" starring Jake Gyllenhaal.

In Source Code, Gyllenhaal's character, Colter Stevens, wakes up in a military scientific research center and is informed that he is now part of a top secret program. This program uses a biological phenomenon called the "source code" which allows a living person to relive the eight minutes prior to a death. Stevens is sent back to a horrific train explosion in an attempt to find the bomber.

After several failed attempts to resolve the situation, Stevens begins to lose his mind, questioning what he is and who he has become. To give any further details would ruin the movie for anyone who has not seen it. The movie's pace never slows down, and the climax of the film certainly comes out of nowhere. The end is a very original even

if it doesn't make a whole lot of sense.

However, this is one of those films where attention to detail is a must. So much happens and so many little things click, if any details are missed the viewer will be lost. It could easily be compared to films such as Inception or Shutter Island in terms of complexity. Psychological thrillers are becoming more and more common in today's society, and this one certainly falls into that category.

All in all, even if one doesn't like the movies being shown, the Fall Film Festival is a free, weekly social event to help combat the mid-semester boredom so very prominent among the student body. If this sort of event sounds interesting, be sure to catch more of the movies this semester at Leach Theatre.