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**MthSc 985, Fall 2011: Combinatorial Computational Biology of RNA  
Tutorial & Research Symposium**

**Thursday, December 15, 2011. Martin Hall M-301, 11:30–2:00**

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**DESCRIPTION:**

MthSc 985 is an ADM topics graduate course and the topic varies from semester-to-semester. This semester the course was an introduction to a new active research area in the theory of RNA pseudoknot structures. We used a new Springer book by Christian Reidys, who has made major contributions to this field within the last decade and has carved himself a niche. Reidys' book is aimed at researchers and graduate students who are interested in learning about computational biology, RNA structures, and mathematics. The subject is truly interdisciplinary, as the material draws from all five subfaculty areas of the Clemson math department. One unique aspect is that the Clemson graduate students, who are required to take multiple courses in all five subfaculty areas, have a more diverse and well-rounded background than any of the Clemson faculty! In fact, the research areas of the eleven students in this semester's class fall into four of the five subfaculty areas.

We have been taking advantage of the diversity of the mathematical background and strengths of the students taking this class. The course has not been one faculty member teaching eleven graduate students, but rather, a dozen mathematicians with various backgrounds coming together to learn a new area of research. As with any young field, there are many unexplored areas, loose ends, and good future research problems that we can discover. As our *final project*, we are writing a self-contained *research proposal*. Each student is contributing by writing a section, or by giving short presentation about it. These presentations will make up our *Tutorial & Research Symposium* that will take place during the final exam period. The schedule of talks appears below.

Graduate students are faculty alike (and not just from Mathematical Sciences) are welcome to attend!

**SCHEDULE:**

- 11:30 – 11:40    **Matthew Macauley**, *Welcome and overview.*
- 11:40 – 12:05    **Rachel Grotheer**, *A survey of the mathematics of RNA structures.*
- 12:10 – 12:35    **Kaitlin Woskoff**, *Mathematical formalization of twists in RNA pseudoknots*
- 12:35 – 12:45    **Break**
- 12:45 – 1:10    **Nate Black**, *Generalizations of the combinatorics of RNA structures*
- 1:15 – 1:40    **Min Wang**, *Statistics of RNA pseudoknots*
- 1:45 – 2:00    **Discussion**

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For further information, contact Matthew Macauley, macaule@clemson.edu, 656-1838, Martin O-325.

**Online:** [http://www.math.clemson.edu/~macaule/classes/f11\\_mthsc985/](http://www.math.clemson.edu/~macaule/classes/f11_mthsc985/)