Math 480   Algebra Seminar   Spring 2019

Course expectations: The seminar meets once a week on Tuesdays at 10:05-11:30 a.m. Class attendance is required. Active participation is expected.

Each student will pick a topic from a list of possible seminar topics and will prepare a talk to be delivered to the whole class, during a one hour presentation. If more time is needed, arrangements will be made for a second talk.

In addition to the talk, the student will hand-in a written report on the topic. Such report should be a written version of the talk, with any additional pertinent information, and references.

Course evaluation: A letter grade will be assigned based on:

- Class attendance and active participation
- Talk presentation
- Written report

Classroom Environment Everyone has the right to be addressed by the name and pronouns that correspond to their gender identity, including non-binary pronouns, for example: they/them/theirs, ze/zir/zirs, etc. Rosters do not list gender or pronouns so you may be asked to indicate the pronouns you use so that I don't make assumptions based on your name and/or appearance/self-presentation (you are not obligated to do so). If you use a chosen name, please let me know. Chosen names and pronouns are to be respected at all times in the classroom. Mistakes in addressing one another may happen, so I encourage an environment of openness to correction and learning. I will not however, tolerate repeated comments which disrespect or antagonize students who have indicated pronouns or a chosen name. Chosen name and personal pronouns may evolve over time, so if at any point during the semester you would like to be addressed differently, please let me know.

Statement from SSD: Students requesting disability-related accommodations should register with the Services for Students with Disabilities office (SSD). They are the appropriate entity on campus to determine and authorize disability-related accommodations. The office is located in the University Union, room 119. Phone number 607-777-2686. For students already registered with SSD, please provide your academic accommodation letter as soon as possible so that we can discuss the implementation of your accommodations.

Look for additional information, including updates on this document at:

https://goo.gl/hyKZ1o

Math 480   **Algebra Seminar**   **Spring 2019**

Possible seminar topics

1. On the Burnside Problem
   Drew A. Hudec, http://goo.gl/GMIP0w (13 pages)

2. Rubik's Groups
   Edward C. Turner and Karen F. Gold, MAA Monthly 92(1985) No. 9, 617–629.

3. *"The identity $(xy)^n = x^n y^n$: Does it buy commutativity?"*
   H.E. Bell, Math. Magazine 55(1982) No. 3, 165–170.

4. *"Associativity of the Commutator Operation in Groups"*
   F. Guzmán, Sao Paulo Journal of Mathematical Sciences 3, 2(2009), 231-240

5. Birkhoff's theorem on varieties.
   S. Burris and H. P. Sankappanavar, *"A course in universal algebra"*, Ch. II §11, 77–84.

6. *"On a Theorem of Frobenius: Solutions of $x^n = 1$ in Finite Groups"*
   I. M. Isaacs and G. R. Robinson, MAA Monthly 99(1992) No. 4, 352–354.

7. *"The maximum order of an element of a finite symmetric group"*
   W. Miller, MAA Monthly 94(1987), No. 6, 497–506.

8. *"Boolean Circulants, Groups, and Relation Algebras"*
   Chris Brink and Jan Pretorius, MAA Monthly 99(1992), No. 2, 146–152.

9. Transcendental numbers: proofs that e and π are transcendental.
   Ian Stewart, *"Galois Theory"* 3rd. Ed., Ch. 24, 269–278.

10. *"Sylow Fractals"*
    Ben Brewster and Michael B. Ward, Mathematics Magazine, 68, No. 5 (1995), pp. 372-376.

11. Classification of subgroups of $\mathbb{Q}$.
    L. Fuchs, *"Abelian groups"*, Ch. VII, §42, pp. 145-149.
    "When Are Two Subgroups of the Rationals Isomorphic?"
    Friedrich L. Kluempen and Denise M. Reboli, Math. Magazine, 77(2004), pp. 374-379.

12. Any other topic suggested by the student and approved by the instructor.