

# **CS590R: Algorithms for Communication Networks**

Gopal Pandurangan

`gopal@cs.purdue.edu`

Office: CS174

webpage: [www.cs.purdue.edu/homes/gopal/cs590/](http://www.cs.purdue.edu/homes/gopal/cs590/)

newsgroup: `purdue.class.cs590r`

# Course Outline

- Probability Theory and Models.
- Probabilistic and Randomized Algorithms.
- Distributed Algorithms.
- Routing.
- Collision Resolution.
- Queueing Models.
- Flow Control / Congestion Control.
- Peer-to-Peer Networks.
- Social Networks.
- Adhoc Networks.

- Mobile Networks.
- Internet and the WWW.

# References

- Data Networks by Bertsekas and Gallager.
- Randomized Algorithms by Raghavan and Motwani.
- Probability Models for Computer Science by Ross.
- Queueing Systems by Kleinrock.
- Introduction to Distributed Algorithms by Tel.
- Lecture Notes.
- Papers.

# Grading

Lecture Notes(20%):

- One student nominated every week to take notes.
- Complete, clear, and correct.
- Typeset in Latex.
- One week to submit.

Problems of the week (30%):

- Individually written (in Latex) (**can be collaborative.**)
- Weekly one problem given in class.
- Random person presents solution in the subsequent week.

## Final Project and Presentation (50 %):

- Theoretical and/or experimental study of a problem in networks.
- Presentation in class.
- Points depend on creativity, originality, completeness, and presentation.