Semester: Fall Semester, 2017
Course Number: CISC 5835
Course Title: Algorithms For Big Data
Faculty: Dr. A. G. Werschulz
  Office: Rm 815D. Phone: (212) 636-6325
  E-mail: agw@dsm.fordham.edu
  WWW http://www.dsm.fordham.edu/~agw/big-data-alg
Class meetings: Tuesday: 5:30 p.m.–7:45 p.m., LL512
Office Hours: Monday: 4:00 p.m.–5:30 p.m.
  Tuesday: 4:00 p.m.–5:30 p.m.
  (or by appointment)
Class Email List: big-data-alg@dsm.fordham.edu
Course Outline (Topical): We hope to cover (at least portions of) the following topics. If time grows short, we will omit one or more of the topics marked with asterisks.
  Prologue
  Divide-and-conquer algorithms
  Decomposition of graphs
  Paths in graphs
  Dynamic programming
  NP-complete problems
  The map-reduce model
  Streaming
  Sketching
  Hashing
  Graph processing
  Metric embeddings
  Sublinear algorithms
  Randomized and probabilistic algorithms

Protocol: Examinations: The midterm examination will be on Tuesday, October 10, and will take up roughly one half of the regular class time period. The final exam will be on Tuesday, December 19, taking up the entire class time period.
Homeworks: Homework will be assigned on a regular basis; the assignments will be posted on the class website. Unless otherwise specified, they will be due at the beginning of the next class session. Homework assignments may involve theoretical work (such as determining the worst-case run-time of some algorithm) or programming, perhaps both. Late homework will not be accepted, barring serious illness or unavailability of the Departmental computing facilities.
Electronica: You may not use laptop computers, tablets, or mobile phones during class time.
Grading:
  homework assignments  50%
  one midterm exam     25%
  one final exam       25%

Other Requirements: None.

Readings: We will be covering material from sections from Chapters 0–4, 6, and 8 from the Dasgupta text, as well as additional material to be specified.

Academic Integrity: To begin with, you should familiarize yourself with the University’s policy on Academic Integrity, which may be found at
  http://www.fordham.edu/info/25380/undergraduate_academic_integrity_policy
Pay special attention to the Standards of Academic Integrity. As a corollary to same, you are not to pass off someone else’s solution to any homework exercise (including programming problems) as your own, regardless of whether you obtained it from a fellow student, an acquaintance, or from the Web. Analogously, you should take all reasonable necessary steps to prevent other people from stealing your work; in particular, when you write a program on the Departmental Linux systems at Lincoln Center, it should be located in (an appropriate subdirectory of) your private directory.

As likely as not, you will find yourself stumped by some phase of a homework problem. When this happens, you should check with me during office hours (or you should make an appointment if office hours are inconvenient). Anything that you turn in is to be your own work. If you are in doubt as to the legitimacy of your actions, ask me beforehand.

Additional Remarks:
  There will be no make-up exams given after the exam date. If you know in advance that you will have to miss an exam, you must check with me (in advance) to avoid getting a zero for that exam. In case of illness on an exam date, please contact me as soon as possible, so that appropriate arrangements can be made.
  As noted above, this course has a website, which you should visit for announcements, assignments, and links to useful resources.
  If you believe that you have a disabling condition that may interfere with your ability to participate in the activities, coursework, or assessment of the object of this course, you may be entitled to accommodations. If so, please schedule an appointment to speak with me immediately or you may go to the Office of Disability Services (x6282). Under the Americans with Disabilities Act and Section 504 of the Vocational Rehabilitation Act of 1973, all students, with or without disabilities, are entitled to equal access to the programs and activities of Fordham University.