

Rutgers University-New Brunswick  
School of Engineering  
Dept. of Civil and Environmental Engineering  
Spring 2026, Wed 6:00-9:00  
Classroom: Busch Campus, Weeks Hall 402

Instructor: Dr. Q. Guo  
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Office: Weeks Suite 328  
Office hrs: By appointment

## 16:180:566 SEDIMENT TRANSPORT

### (COURSE OUTLINE)

- Topics:**
1. Introduction
  2. Sediment properties
  3. Review of Fluid Mechanics
  4. Particle settling
  5. Scour criteria and design of stable channels
  6. Alluvial bed forms and flow resistance
  7. Bed load
  8. Suspended load
  9. Total load
  10. Channel aggregation and degradation (HEC-RAS Program)
  11. Overland erosion processes
  12. Reservoir sedimentation and management
  13. Solids deposition and flushing in sewers
  14. Cohesive Sediment
  15. Bridge scour prediction and protection
  16. Dam removal and stream restoration

**References:**

1. Sediment Transport Dynamics, by W. Wu, 1st Edition, CRC Press, 2023. [*E-book accessible via Rutgers Library*]
2. Sediment Transport: Theory and Practice, by C. T. Yang, The McGraw-Hill Companies, Inc., 1996. [*On reserve at Rutgers Library*]
3. Fluvial Processes in River Engineering, by H. H. Chang, Krieger Publishing Co., Malabar, Florida, 1992. [*On reserve at Rutgers Library*]
4. Sediment Transport Technology, by D. B. Simons and F. Sentürk, Water Resources Publications, 1992. [*On reserve at Rutgers Library*]
5. Stream restoration in dynamic fluvial systems: scientific approaches, analyses, and tools, by Simon, A. et al., American Geophysical Union, 2011. [*On reserve at Rutgers Library*]

- Grading:** The final course grade will be based on homework (30%), one presentation (20%), one independent project (20%), and one in-class exam (30%).