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. Cohesive Sediment
11. Channel aggregation and degradation (HEC-RAS Program)
12. Overland erosion processes
13. Reservoir sedimentation and management
14. Solids deposition and flushing in sewers
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%).