Green Chemistry

What is Green Chemistry?
According to the EPA, Green Chemistry is the design of chemical products and processes that reduce or eliminate the use or generation of hazardous substances.

Make the Pledge:
No new chemical, or process by which that chemical would be manufactured, should be commercialized without a complete green chemistry screen for human health and environmental impacts.

Tools:
GreenScreen – http://www.greenscreenclassic.org/
Pharos – http://www.pharosproject.net/
GreenSuite – www.chemply.com
ToxCast™ - http://www.epa.gov/ncct/toxcast
TiPED – www-tipedia.com
DfE – www.epa.gov/dfe/
MBDC – www.mbdc.com/
UL – www.ul.com
GaBi Software - http://www.gabi-software.com/america/index/
Isustain - https://www.isustain.com/
EIOlCA - http://www.eiolca.net/

Resources:
Yale University - http://www.greenchemistry.yale.edu/ (Dr. Paul Anastas and Dr. Julie Zimmerman)
UC Berkeley - http://bchc.berkeley.edu/ (Dr. Martin Mulvihill)
University of Nottingham - http://www.nottingham.ac.uk/chemistry/index.aspx (Dr. Martyn Poliakoff)
University of Melbourne – http://www.monash.edu.au/research/capabilities/leading/green.html (Dr. Milton hearn)
University of Oregon – http://greenchem.uoregon.edu/ (Dr. James Hutchison, Dr. Julie Haack)

12 Principles of Green Chemistry
1) Prevent waste
2) Maximize atom economy
3) Design less hazardous chemical syntheses
4) Design safer chemicals and products
5) Use safer solvents and reaction conditions
6) Increase energy efficiency
7) Use renewable feedstocks
8) Avoid chemical derivatives
9) Use catalysts, not stoichiometric reagents
10) Design chemicals and products that degrade after use
11) Analyze in real time to prevent pollution
12) Minimize the potential for accidents
Books:

General
Confessions of a Radical Industrialist, by Ray C. Anderson
The Ecology of Commerce, by Paul Hawken
Chasing Molecules, by Elizabeth Grossman

Textbooks
Green Engineering, Environmental Conscious Design of Chemical Processes, by David T. Allen and David R. Shonnard
Green Chemistry and Engineering, A Practical Design Approach, by Concepcion Jimenez-Gonzalez and David J. C. Constable