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Author(s): Wendelberger, Joanne Roth

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Insights on STEM Careers

Joanne R. Wendelberger, Ph.D.

Statistical Sciences Group, Los Alamos National Laboratory

joanne@lanl.gov

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Abstract

This presentation will provide career advice for individuals seeking to go beyond just having a job to building a successful career in the areas of Science, Technology, Engineering, and Mathematics. Careful planning can be used to turn a job into a springboard for professional advancement and personal satisfaction. Topics to be addressed include setting priorities, understanding career ladders, making tough choices, overcoming stereotypes and assumptions by others, networking, developing a professional identify, and balancing a career with family and other personal responsibilities. Insights on the transition from individual technical work to leadership will also be provided. The author will draw upon experiences gained in academic, industrial, and government laboratory settings, as well as extensive professional service and community involvement.

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Introduction

- Careers in Science, Technology, Engineering, and Mathematics provide many exciting options.
- Work on interesting challenges.
- Requires in-depth technical training.
- Valuable, sought-after skills.
- Excellent employment opportunities.
- Able to work on diverse types of problems.
- Often portable and widely applicable.
- Sometimes flexible.
- Can accommodate different career paths.



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STEM Career Opportunities

Business and Industry



Education



Government



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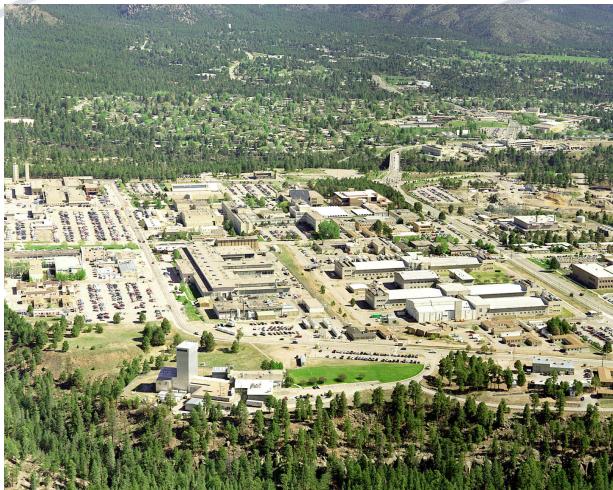
My Background

- B.A. in Mathematics & Economics, Oberlin College, 1981
- M.S. in Statistics, U. of Wisconsin, 1983
- General Motors Research Laboratories, 1984-1987
- Ph.D. in Statistics, U. of Wisconsin, 1991
- Los Alamos National Laboratory, 1992-present
 - Technical Staff Member
 - Project Leader
 - Deputy Group Leader
 - Group Leader



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Los Alamos National Laboratory



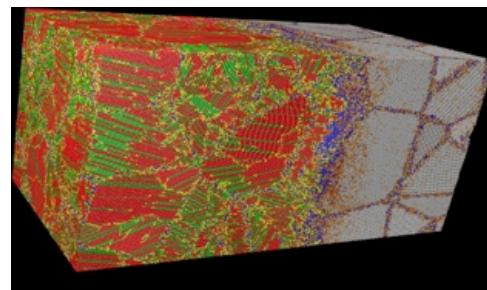
Solving National Security
Challenges Through
Excellence in Science



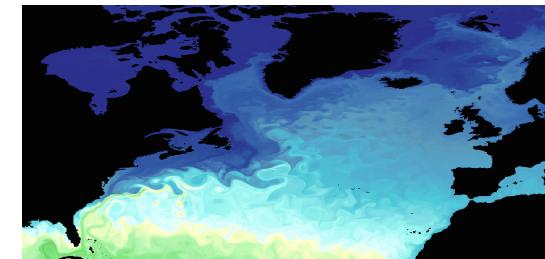
Defense



Energy



Materials



Climate



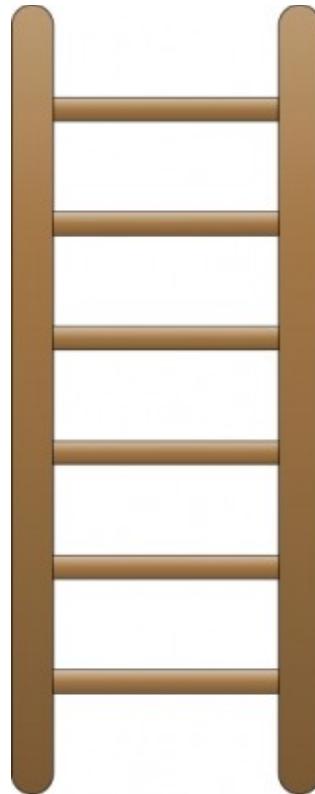
Computing

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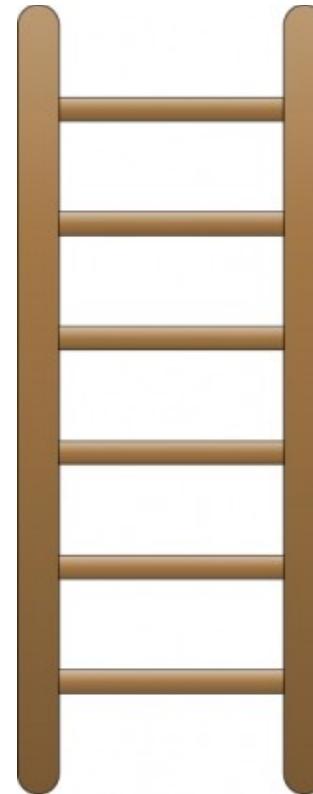
Selected Career Ladders at Los Alamos



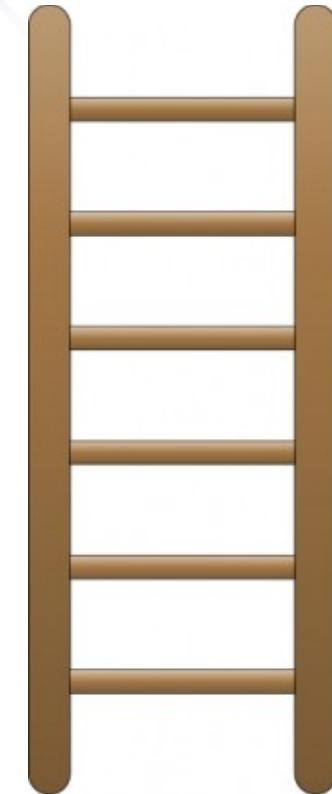
Scientist



R&D Manager

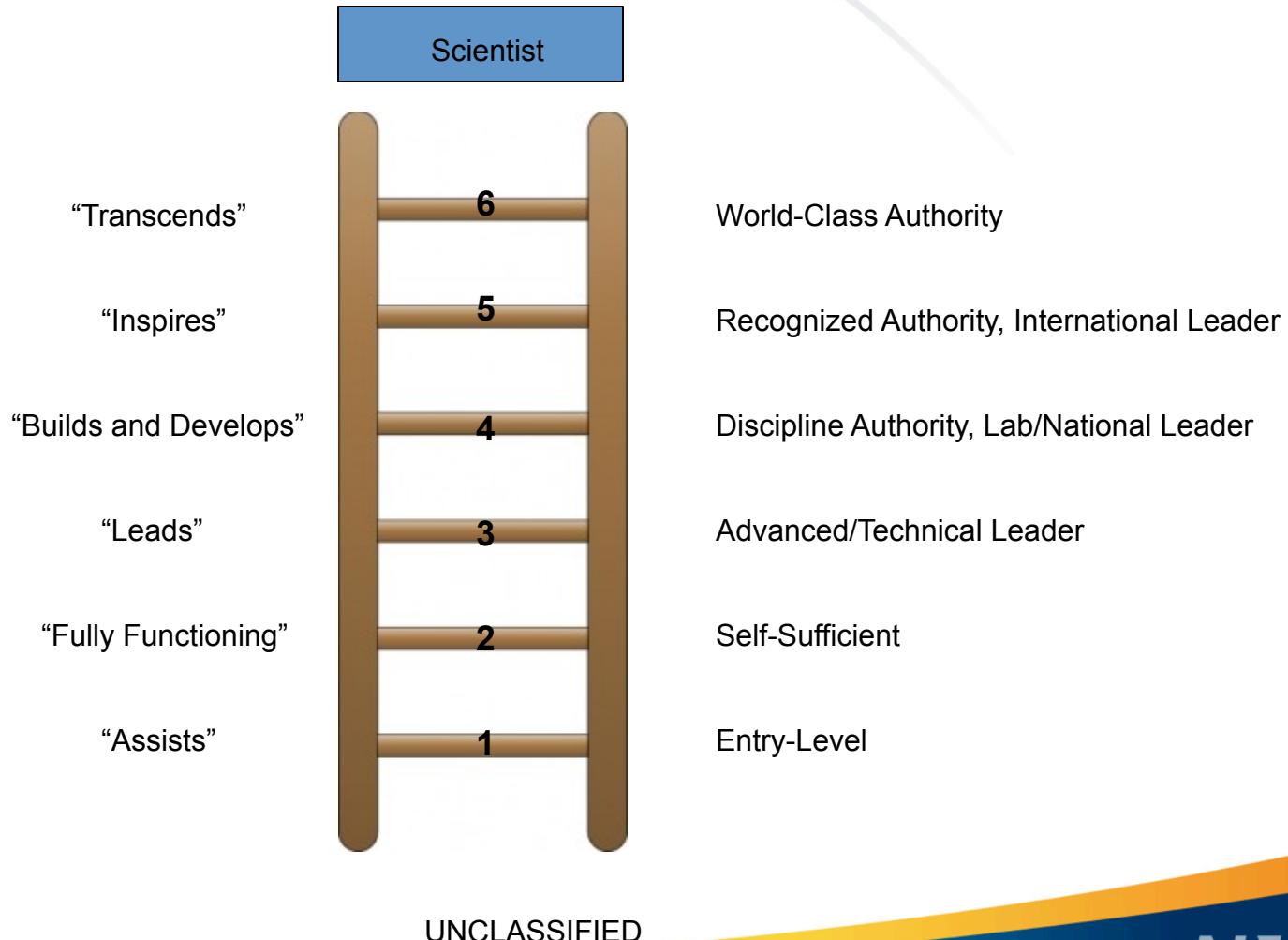


Program Manager



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The Scientist Ladder at Los Alamos



Building a STEM Career

- Establish a solid technical foundation through education, internships, entry-level jobs.
- Many jobs require a graduate degree or specialized training.
- Develop your technical skills, and keep learning.
- Find out what is valued.
- Understand the risks and rewards of your chosen field.
- Be cognizant of costs and benefits associated with alternatives.
- Look for opportunities and challenges.
- Seek out mentors.
- Build a network of collaborators.
- Join relevant professional societies.



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Developing a STEM Career

- Make sure supervisors, colleagues, and sponsors know what you are doing on a regular basis.
- Document your work.
- Communicate expectations, such as co-authorship, clearly.
- Assess your strengths and weaknesses. Think about what kinds of things come easily to you and what kinds of things you enjoy.
- Market yourself, your skills, and the value of your technical skills.
- “A certain amount of self-promotion is an important part of building a career.”
- Step up and take on responsibility. Be a leader (sometimes hard for technical people).



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Managing Your Career

- Use your technical knowledge and skills.
- Do your best, and go the extra mile!
- Develop relationships and strong communication.
- Manage your priorities.
- Manage your schedule – be careful what you say.
- Get things done on time.
- Delegate as appropriate.
- Don't underestimate the social aspect: lunches, after-work gatherings, sports activities.



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Perceptions

- Project a positive professional image.
- Think about your environment and how you want to be viewed.
- Share your technical insights.
- Don't let people assume things about you that are not true.
(motivation, goals and aspirations, salary expectations,
- Avoid getting categorized inappropriately.
- Realize that choices may impact rate of professional growth. Some impact may be justified, but impact may be disproportionate.
- Be cautious of “supportive” individuals who may lower their expectations of you.



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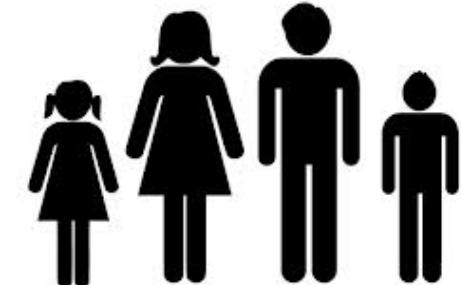
Gender Issues

- Many studies have documented gender inequalities in the workplace.
- Recent attention at high profile companies like Google has raised awareness of the underutilization of women in technical roles.
- My goal is to provide strategies to deal with the realities in a positive, constructive manner.
- Can take advantage of attributes and skills.
- In some settings, may even gain extra support and encouragement from individuals in a position to help.

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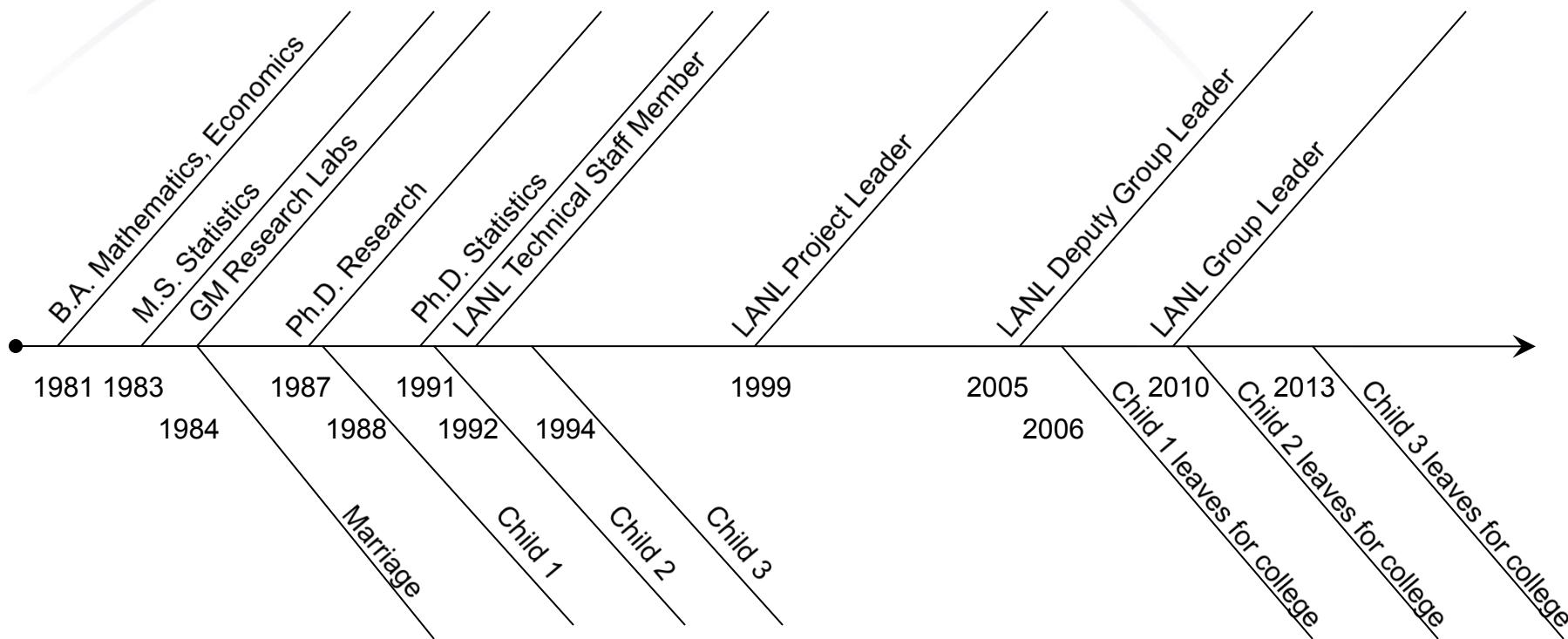
Maintaining a Balance with Family Responsibilities

- Full-time, part-time, time off - YOU must choose.
- May want to consider flexible scheduling, leave of absence.
- Childcare is an investment in your child and your career.
- Need solid regular childcare arrangements.
- May need “Extra Arrangements” for meetings, trips, conferences.
- Be prepared for “Emergencies” (sick children, forgotten lunches, missed buses, changes in plans).
- Creative solutions! (kid swaps, carpools, business travel with or without kids, bringing friends or family to conferences)



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Example of a Career Timeline



Managing the Big Picture

- Choose your activities carefully.
- Plan outside activities that fit your life.
- Make time for health and wellness.
- Volunteer activities can enhance professional skills, but think carefully before you raise your hand...
- Don't try to do it all.
- Give yourself a break.
- Think about where you want to be in 1 year, 5 years, 10 years.



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Aim for Success!

- Be proactive about your career.
- Figure out what you want and how to get it.
- Build and maintain technical competency.
- Don't get overwhelmed. Learn when to say "no".
- Plan for different time horizons (short, medium, long).
- Watch for opportunities and consider new directions.
- Have fun with your career!



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A Few References



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