Project Management for Scientists

Introduction to the Course

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OUTLINE

• Course Goals
• People
• Communications
• Required Book
• Schedule and Requirements
• Exam and Grades
• Project Management in 4 Slides
• Lecture Overview
My Course Goals

- Become a more successful scientist by organizing scientific ideas and projects
- Learn to take scientific ideas from initial visions to successfully funded projects
- Learn to look at project management as a way of thinking
- Improve your own projects in this course
People

- Christoph Keller  
  Professor of Experimental Astrophysics

- Helena Becher  
  4th-year PhD student, Experimental Astrophysics
Communications

- Blackboard
- MSc students sign up on Osiris
- Everybody else provide solis-ID and will be signed up on Blackboard only
- Email: C.U.Keller@uu.nl, H.M.Becher@uu.nl
- Course web page: www.astro.uu.nl/~keller/Teaching/PMSci_2011
- Schedule, lectures, exercises, iCal calendar
Required Book

- Published by John Wiley and Sons Ltd
- Available at bookstores, bol.com
- Use selected chapters as reference
- All lectures, exercises will be available on course webpage
## Course Schedule

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
<th>Room</th>
<th>Type</th>
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</thead>
<tbody>
<tr>
<td>Monday</td>
<td>11:00-12:45</td>
<td>BBL 077</td>
<td>Lecture</td>
</tr>
<tr>
<td>Tuesday</td>
<td>09:00-10:45</td>
<td>BBL 077</td>
<td>Exercises</td>
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<tr>
<td>Tuesday</td>
<td>11:00-12:45</td>
<td>BBL 077</td>
<td>Lecture</td>
</tr>
<tr>
<td>Thursday</td>
<td>13:15-17:00</td>
<td>BBL 077</td>
<td>Exercises</td>
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Course Requirements

- Exercises are integral part of course
- Computer and paper exercises
- Home work and some exercises have to be submitted by deadline
- Submitted work will be checked and/or discussed
- Solutions will not be made available in writing or online
Exams and Grades

• Relevant documents for open-book exam
  • Lectures, books
  • Exercises and home work
• Written exam after course, oral exams after that
• Grade composition
  • 40% home work, exercises, reports
  • 60% exam
What the scientist needed
How the scientist described it to another scientist
What the engineer thought that the scientist described
What the proposal promised

What the reviewer understood

What the funding agency was hoping for
When it was delivered

What the scientist really wanted
• Not all lectures are fully defined yet
• Provide input on areas that are missing
Scientific Projects

CREATIVITY EXERCISE

TEAM ONE MADE A DEVICE THAT CONVERTS AIR TO ELECTRICITY.

TEAM TWO USED THEIR HOUR TO CREATE A MISSILE DEFENSE LASER.

TEAM THREE, DO YOU NEED MORE TIME?

IT'S A SCISSORS HOLDER!

don't hallucinate.
Scientific Vision and Strategy

- Scientific Visions
- Strategic Thinking and Planning
- Strategic Analysis (SWOT)
- Strategic Goals (SMART)

dilbert.com/strips/comic/2009-11-26/
**Project Definition**

- Key Players and Stakeholders
- Project Rules and Charter
- Project Statement of Work
- Responsibilities and authorities

dilbert.com/strips/comic/1998-11-10/
Scientific Requirements

• Science Objectives and Requirements
• Other Requirements
• Template and Example
• Checklist

dilbert.com/strips/comic/2009-12-10/
Proposal Planning & Organization

- Proposal as a Project
- Successful Proposals
- Proposal is Marketing

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**Work Breakdown Structure**

- Project Planning
- Work Breakdown Structure (WBS)
- Work Package Content
- Checklist
Cost and Schedule Estimates

- Resource Assignments
- Estimates
- Task Dependencies
- Scheduling

dilbert.com/ strips/comic/2010-05-05/
Proposal Writing

I put together some guiding principles for our network architecture.

I sure hope this isn't a bunch of obvious ideas disguised with techno-jargon and unclear writing.

Let the games begin.

So tell me, do suspenders cause muddled thinking, or is it the other way around?

dilbert.com/strips/comic/1997-06-02/

- Top 10 reasons proposals are not funded
- Identifying funding source
- Writing and common writing mistakes
- Examples
Team Formation and Hiring

- Project Team Dynamics and Challenges
- Job Announcements
- CV
- Interviews and Hiring Decision

dilbert.com/strips/comic/2008-05-03/
**Project Organization & Control**

- Resource Allocation
- Balancing
- Control Activities
- Change Management

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Accounting and Cost Control

- Basic accounting
- Cost analysis and control
- Contracts and contract management
Schedule & Time Management

- Progress Measurement and Critical Paths Analysis
- Balancing at Project Level
- Project Overload
- Time Management

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Risk Management

- Risk Management Framework
- Risk Identification
- Risk Analysis and Priority
- Risk Mitigation
Communication

- Communicating downwards and upwards
- Communication plans
- Meetings
- Reporting

dilbert.com/strips/comic/2010-09-24/
Typical Project Problems

- Responsibility – Authority Mismatch
- Firefighting and Disaster Recovery
- Impossible Dream
- Project Success Factors