

Essential Skills for Scientists

Project Management in Science

The Sativus GEMS program has been established to help scientists be the best they can be. Being inefficient with science communication and project management takes time away from doing great science, creates stress and compromises the science itself, wasting resources.

Wouldn't it be great if scientists could efficiently and effectively manage research, other people and science communications? The GEMS by Sativus program is your answer. GEMS is a learning program by scientists, for scientists, to help each other Grow, Evolve, Mentor and Succeed in project management and science communications.

Improving scientists' ability to manage projects and communicate creates positive changes:

- Financial benefits through improved risk, time, budget and staff management, and enhanced opportunities (including funding)
- Increased scientific impact
- Increased morale through better collaboration, cooperation and industry networking
- Lightened workload and reduced stressors that come from improved efficiencies
- Increased space for scientists to be creative and generate insights, which are needed for generating the next big idea.

The GEMS flagship course, Essential Skills for Scientists (ESS), creates scientists that have the project management and science communication skills they need to do great science that is accessible, by providing skills that are necessary but not traditionally taught to scientists.

The ESS course covers a broad range of topics from how to prepare a proposal, final report, presentations and data visualisation, building collaborations, networking and managing stakeholder relationships, to other tasks like preparing and implementing risk and communications plans and budgets. ESS is used as the basis for targeted, structured learning programs that are tailored to the needs of the scientist depending on their career stage.

This ESS Project Management in Science Short Course will provide you with the knowledge and skills that are essential to being a successful scientist.



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Project management is a skill that scientists need because essentially, scientists manage projects in a variety of different circumstances. Project management is a structured process to actively plan and implement strategies to reduce risks to a project and identify and enhance opportunities, not just what you do to keep a project going, as it's going.

In science, there are no certainties, and you can't guarantee you will achieve what you set out to – but this doesn't mean you shouldn't put the effort into planning to ensure your project is as successful, and impactful as possible. There are so many benefits and opportunities waiting for you if you apply some type of formal project management structure to your work. Project management skills are critical to ensuring your project starts on the right track and stays on track, which is why it is increasingly a requirement to receive funding for science.

Packages tailored depending on requirements:

- Access to online program, including tailored/bespoke options
- Fortnightly emails with handy tips
- Sativus supplies
- Course guide with resources and course tasks
- Online support (response within 24 hours)
- Review and feedback on completed online tasks
- Group classes, workshops and webinars
- One-on-one guidance/mentoring sessions

Every scientist supported by Sativus through the GEMS program has benefited from developing these skills. This includes research managers, academics, students and those working in policy and government and the private sector.

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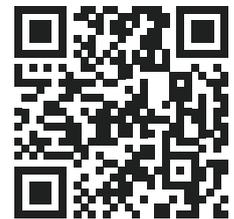
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Course Content

Project Management

Effective project management	Project management is an essential skill for scientists – this lesson provides an overview of the importance of proper project management during research projects.
Failed research vs failed project management	Identifying whether your project failed because of issues with project management is an important skill to have. This lesson will help you understand the difference between failed project management and failed research.
Project management triple constraints	How you conduct your project will have constraints – things that just cannot be compromised on. This lesson outlines how the ‘time’, ‘cost’ and ‘quality’ components of a project are the key constraints.
Resource management	It’s important to know what resources you need before you start a project to ensure they’re available. This lesson will give an overview of resources you might need, and how to best utilise them to make sure your project stays on track.
Staying on track	Unexpected things can happen at any time during your project. This lesson will help you work through how to effectively change the course of your project if something unexpected happens.
Finalising projects	Often, submitting the final deliverable is not actually the end of the project. This lesson outlines the two components to closing out a project – finishing all tasks and identifying lessons learned.
Understanding risk	In every day life people generally don’t like to talk about risk. This lesson will provide information on different types of risk and what they mean.
Risk identification	Identifying the potential positive and negative risks to your project is the first step in risk planning and management. This lesson will help you identify potential project risks by completing a risk identification table.
Consequences vs likelihood of risk	You can give risks a ranking to determine which should be mitigated and which can be left to deal with later. This lesson will guide you through how to use ‘consequence vs likelihood’ tables to work this out.
Risk appetite	Whether or not you think something is a risk will be different to others because this is determined by your past experiences and knowledge. This lesson will help you understand the two components that determine whether someone considers something a risk – risk appetite and experience.
Quality plans	‘Quality assurance (QA)’ and ‘Quality Control (QC)’ are extremely important in your project. This lesson provides an overview of these two concepts and describes how to complete and maintain a quality plan.
Communications plan	A communications plan helps mitigate risks that involve internal and external stakeholders. This lesson provides an overview of the importance of a project communications plan, and a method for creating an effective one.
Scope management	The ‘scope’ of your project is what is expected will be done with the time and funding provided. When the scope starts to expand or change during a project this is called ‘scope creep’. This lesson will help you define a project scope and complete a scope management plan.

Risk register	There are tools available to help you manage risks during your project. This lesson will help you start thinking through project risks and completing a risk register.
Issues register	Risk management is what you do when a risk actually occurs and becomes an 'issue'. This lesson outlines how to maintain an issues register and its importance for capturing changes that occur during a project.
Budget planning	Planning and active project management is important for keeping your budget on track. This lesson outlines how to prepare and manage a budget plan so you can identify sooner rather than later if you need to adjust project spending.
Time management	Managing time well is an important skill to ensure projects are conducted efficiently and successfully completed, however, most humans are terrible at estimating time. This lesson outlines the reasons for project delays and provides options for ways to manage time more effectively.

Key Concepts

Scientific insights	Insights are also referred to as “aha” or “Eureka” moments – in this lesson, you will learn the value of insight for creative science.
Ethical conduct of research	As a researcher in Australia, you are bound to adhere to government requirements and principles of ethical research. This lesson gives an overview of the Australian Code for the Responsible Conduct of Research.
Cooperation vs collaboration	There is a difference between cooperation and collaboration in scientific research. In this lesson you will learn the difference, and the importance, of each.
Human ethics in research	If you plan to use human participants in your science, it's important to know and understand your responsibilities. This lesson gives an overview on the National Statement on Ethical Conduct in Human Research.
Animal ethics in research	In Australia, the use of animals for scientific purposes is governed by the 'Australian Code for the Care and Use of Animals for Scientific Purposes'. This lesson provides an overview of this Code and the ethics considerations required when conducting research that involves animals.
Dealing with rejection	Rejection is a common aspect of scientific research – this lesson will help guide you through how to accept and react to rejection throughout your research.
Feasibility and limitations of ideas	Not every idea is the best idea for a given situation. This lesson will provide tools on how to review and determine the best ideas, and execute them in a way that will create the most effective outcome.
Criticism in science	In science, you have to accept that you will always have critics. This lesson will help you recognise, and prepare for, constructive and unconstructive criticism of your work.
Scientific wonder	Curiosity is critical for making us aware of the limits of our understanding – this lesson will explain the value of wonder in science.

Science Adoption and Impact

Practise change	Scientists want to create positive changes, which means someone, somewhere will likely be faced with changing what they currently do because of the findings from your science. This lesson outlines how change occurs and why this is important to how you conduct your science.
Extension and adoption in science	In science, extension and adoption go hand in hand but are two different things. This lesson will go through the differences between the two, and highlight the role that each plays in creating impactful science.
Changes in project outcomes	At the beginning of your project, it should be clear what the project is planning to achieve as the primary outcome. This lesson will help you understand that there may be other plausible and possible outcomes to your project.

Science Communication

The curse of knowledge	Not everyone is a subject matter expert, which means things that seem “common knowledge” to you, are probably not common knowledge to them. This lesson provides guidance on how to avoid the “curse of knowledge” reducing the effectiveness of your communications.
Research reports	Research reports are important advertisements of yourself, so you need to make sure you do a good job and create a quality output. This lesson provides tips on preparing a great research milestone/final.

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