

Problem-Solving Skills for University Success

Academic Skills for University Success Specialization

The University of Sydney Centre for English Teaching

Overall Learning Outcomes

1. Recognise the importance & function of problem solving & creative thought within academic study.
2. Categorise problems & understand the problem-solving process.
3. Generate initial ideas & solution paths to problems.
4. Develop a toolkit of strategies to solve problems at university.
5. Apply critical & creative approaches to solving problems.
6. Evaluate & communicate solutions to problems.
7. Apply problem-solving strategies to issues related to university life & study.

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Week 1 (Module 1) - Introduction to Problem-Solving in Academic Culture

After this module, you will be able to 1. Understand the structure & expectations of the course 2. Understand expectations about Problem-Solving within academic culture 3. Articulate the skills & dispositions needed for Problem-Solving 4. Demonstrate awareness of ethical issues related to academic integrity surrounding Problem-Solving

Module	Topic Focus	Learning Objectives (You will be able to...)
1.1	Introduction to the course	<ul style="list-style-type: none">• Understand the learning objectives & structure of the course• Understand assessment requirements• Understand the expectations for participation
1.2	Introduction to Academic Culture & Problem Solving	<ul style="list-style-type: none">• Understand the definition of academic culture• Understand the core values & expectations of academic culture• Understand the role of problem solving in academic culture
1.3	Survival Skills for University	<ul style="list-style-type: none">• Gain insight into key skills for success at university
1.4	Academic Integrity	<ul style="list-style-type: none">• Understand the definition of academic integrity• Demonstrate awareness of ethical issues related to academic integrity surrounding

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Week 2 – Categorizing Problems & The Problem-Solving Process

After this module, you will be able to 1. Categorize different problems based on their type 2. Identify the different problem types most common at university 3. Recognise language associated with descriptive & analytical problem types 4. Recognise & apply the four-step problem solving process

Module	Topic Focus	Learning Objectives (You will be able to...)
2.1	Defining & Categorizing Problems	<ul style="list-style-type: none"> Define what a “problem” is Recognise the seven different problem solving categories Describe the kinds of problems most common at university
2.2	Descriptive Tasks & Problems	<ul style="list-style-type: none"> Recognise a simple problem or descriptive problem or task Recognise the language associated with a simple problem or descriptive task Describe the type of response required for a simple problem or descriptive task
2.3	Analytical Tasks & Problems	<ul style="list-style-type: none"> Recognise an analytical task or problem Recognise the language associated with an analytical task or problem Describe the type of response required for an analytical task or problem
2.4	The Problem Solving Process	<ul style="list-style-type: none"> Articulate the importance of accurately defining a problem Describe the four-step process of defining a problem Apply & evaluate the four-step process (Fogler & LeBlanc, 1995)

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Week 3 – Understanding Problems, Generating Solutions & Solution Paths

After this module, you will be able to 1. Apply strategies to help you better understand a problem & identify the goal of a problem 2. Generate ideas or approaches for solving a problem 3. Apply strategies to help you find alternative solutions 4. Recognise the place of research & evidence in problem solving 5. Identify & justify formulas, theories or outside tools required for problem solving.

Module	Topic Focus	Learning Objectives (You will be able to...)
3.1	Understanding the Problem	<ul style="list-style-type: none"> • Recognise the importance of understanding the problem • Identify key terms, units, elements or parts of a problem • Clarify the goal of the problem • Recognise strategies to help visualize a problem
3.2	Starting with What You Know	<ul style="list-style-type: none"> • Recognise the importance of starting with what you know • Identify strategies for brainstorming & mind-mapping a problem • Articulate the strategy of guessing, approximating & hypothesising solutions to problems
3.3	Using Specialised Knowledge	<ul style="list-style-type: none"> • Recognise the place of research & evidence in problem solving • Recognise the utility of applying a formula in problem solving • Recognise the utility of applying a theory when problem solving • Identify ways to justify a particular formula, theory or outside tool
3.4	Problem-Solving with Special Cases	<ul style="list-style-type: none"> • Identify how similar problems can assist in finding solutions • Recognise how simpler versions, special cases or anomalies for specific problems can assist in finding solutions • Use analogies to better understand & solve problems • Apply comparison techniques to solve problems

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Week 4 – Taking Creative & Critical Approaches to Solving Problems, & Evaluating Solutions

After this module, you will be able to 1. Change analogies & viewpoints to solve problems. 2. Apply a variety of forms of reasoning & thinking. 3. Employ creative techniques to the solution of problems. 4. Evaluate a number of solutions to a problem to determine the best one.

Module	Topic Focus	Learning Objectives (You will be able to...)
4.1	Seeking Different Perspectives	<ul style="list-style-type: none">• Appreciate the importance of outside contribution & collaboration in the problem-solving process• Change perspectives & view problems from a different discipline• Engage in discussion to generate solutions
4.2	Applying Forms of Reasoning & Thinking	<ul style="list-style-type: none">• Question the assumptions that underlie stated problems• Consider different levels & systems• Apply inductive & deductive reasoning
4.3	Using Creative Strategies	<ul style="list-style-type: none">• Use lateral thinking techniques to solve problems• Apply negative brainstorming techniques• Generate solutions to problems using unconventional & alternative approaches
4.4	Evaluating Solutions	<ul style="list-style-type: none">• Recognise techniques for the evaluation of solutions• Understand the process of evaluating a solution• Evaluate solutions to a number of different problems & reflect on the process & result

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Week 5 – Communicating Solutions & Solving Problems in Academic Life

After this module, you will be able to 1. Communicate your solutions to problems to your audience. 2. Study for university exams, & communicate your solutions to problems in exams. 3. Deal with competing priorities at university. 4. Find solutions to problems that can occur at university.

Module	Topic Focus	Learning Objectives (You will be able to...)
5.1	Communicating Solutions in Academic Contexts	<ul style="list-style-type: none"> Identify your target audience Understand how to communicate solutions at university in a range of forms – verbally, visually and numerically Recognise how solutions are communicated differently in academic contexts
5.2	Communicating Solutions in Exams	<ul style="list-style-type: none"> Understand how to study for university exams Identify how to answer a number of different exam questions used in university exams Understand how to deal with stress at exam time
5.3	Group work & Problem-Solving	<ul style="list-style-type: none"> Identify ways to increase group problem solving effectiveness Recognise problems within groups and identify strategies for overcoming group problems
5.4	Problems, Problems, Problems...	<ul style="list-style-type: none"> Identify different methods to deal with problems associated with time management at university Become familiar with strategies to de-stress and let things go Identify sources of help to address problems at university