THE MOVIEGOER'S GUIDE TO THE FUTURE

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OVERVIEW

The Moviegoer's Guide to The Future is a unique introduction to cutting edge technologies and their socially responsible and ethical development and use. Whether your background is in science, engineering, the social sciences, the humanities, innovation and entrepreneurship, business, design, film, the arts, or pretty much any other area, this class will help you better-understand how your particular skills, knowledge and interests can help ensure the socially responsible development and use of emerging science and technology.

Through the course, we use ten thought-provoking science fiction movies in innovative ways to explore emerging trends in science and technology, and their ethical, responsible, and beneficial development. Through movies such as *Jurassic Park, Limitless,* and *Transcendence**, we explore technologies that span genetic engineering and "de-extinction", to human enhancement, nanotechnology, and artificial intelligence. We also look at the human side of technology innovation, from the ethics of cloning through movies like *Never Let Me Go*, and predictive justice in *Minority Report*, to the dangers of blind entrepreneurial ambition in movies like *Ex Machina*.

Through these and other movies, the course dives into the increasing complex relationship between science, technology and society, and begins to unpack how, through understanding this relationship better, we can help build a better, more responsible, science and technology-based future.

This is definitely not a course to miss if you're into science, technology and sci-fi, and want to make the world a better place!

IMPORTANT: YOU WILL BE RESPONSIBLE FOR WATCHING THE MOVIES IN THIS CLASS ON YOUR OWN. AS A RESULT, YOU MAY NEED TO PAY PAY-PER-VIEW FEES IN SOME CASES

*The lineup of movies we use may change each time the course is offered.

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REQUIRED READING

Andrew Maynard (2018) *Films from the Future: The Technology and Morality of Sci-Fi Movies* (Mango Publishing). ISBN 978-1633539075

REQUIRED WATCHING

You will need to access the course movies on your own, either through online streaming services, or DVDs etc., or through other means. Some of the movies are available on streaming services like Netflix and Amazon Prime, while others are available on pay-per-view services such as Apple TV and Google.

You are responsible for covering any pay-per-view fees. Full details of where to watch each movie will be posted on Canvas.

WHAT YOU'LL LEARN IN THIS CLASS

KEY IDEAS AND CONCEPTS

We cover a lot of ideas and concepts in this class, including:

- Current trends in emerging and converging science and technology.
- The process and nature of scientific discovery and technology innovation.
- The complex relationships between science, technology, and society.
- Socially responsible and responsive innovation.
- The ethics of research and innovation.
- Social justice, equity, rights, and privilege.
- Power, influence, and innovation.
- The nature of science and belief.
- What it means to be human in a technologically complex age.

LEARNING OBJECTIVES

Following this class, you will be able to:

- Use active viewing skills to gain insights on real-world science and technology-related challenges and opportunities from movies.
- Discuss how science fiction movies can provide insights into the potential benefits and risks of new and emerging technologies.
- Discuss a number of emerging trends in science and technology and the opportunities and challenges they present, including the underlying scientific and social principles.
- Describe some of the key ideas and challenges associated with responsible innovation.
- Discuss why inclusive and transdisciplinary approaches are needed for successful and responsible technology innovation, together with how this might occur.
- Formulate, communicate, and defend well-informed views of your own on the development of beneficial, ethical, and socially responsible science and technology.

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COURSE FORMAT
AND CONTENT

MODULES

The course is divided into seven modules (eight if you include module 0, which is a preparatory module). Module 1 provides an orientation to the course. Modules 2 - 6 are where you will be watching movies, and where the bulk of the learning occurs. Module 7 is a wrap-up module that covers final assignments.

While the modules may be completed at your own pace, you are strongly encouraged to follow the course calendar to ensure that your assignments are completed in a timely manner. Importantly, we will be using Yellowdig Engage for **weekly** discussions associated with modules 2 - 6.

CANVAS

You will be using Canvas for all aspects of this course. Please familiarize yourself with the Canvas modules, and work through the introductory module (Module 0), before classes begin.

COURSE TEXT BOOK

You will need to obtain a copy of the book *Films from the Future The Technology and Morality of Sci-Fi Movies* before the class begins. You will need to read chapters in most of the. modules, and there will be graded assignments based on the book. The good news is that this is not your typical text book. *Films from the Future* is a popular science and technology book that was written to be easy and enjoyable to read, while making you think!

You are encouraged to use either the hard back version of the book, or the ebook version (which is available in several formats). It's also OK to use the audiobook version, although it's not recommended as it's much harder to make notes from an audiobook.

If you have any difficulties getting hold a copy of the text, please let your course instructor know as soon as possible!

MOVIE WATCHING

Yes, you will be watching whole movies, from start to end, in this course! We do this intentionally, as there are things you can learn and insights you can get from watching complete movies that you can't

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get from watching short snippets or simply reading about them. But this does mean that you need to watch these movies using a specific approach if you are going to succeed in the course.

The approach we use is called active viewing, and there are guidelines for this further down in the syllabus. Essentially, you will prepare for what you will be looking out for before each movie, and you will watch while actively paying attention to how the movie provides new insights and connects with new ideas.

You will also be watching movies in pairs. Each of these pairings has been chosen to enhance learning, either from points of convergence between the movies that reinforce ideas, or points of divergence that force you to think about technology and society in creative and innovative ways.

Details on where to watch all of the movies will be posted on Canvas. You may need to cover pay-to-view costs in some cases.

YELLOWDIG ENGAGE

Throughout this course, you are encouraged to discover, explore and develop new ideas and ways of thinking through this class. And as a part of this process, we will be making extensive use of Yellowdig Engage. Yellowdig Engage is a social media-like environment for sharing ideas and responding to others that allows you to learn by engaging with others around topics that grab your interest. Please take the time to work through the Yellowdig Engage introductory module at the very start of the course, so you are prepared to hit the ground running!

IDEAS-ORGANIZER EXERCISES

In this course, we will be making extensive use of "ideas-organizer" exercises to support and evaluate learning against course objectives. These are short exercises where you are asked to provide short responses to a series of questions, such as listing quotes from readings that stand out to you, or identifying thinks you've learned, or that surprise you, or highlighting questions or areas that you're interested in.

In modules 2 - 6, these exercises are an important part of preparing you for watching the movies, and helping you to capture your thoughts and ideas after watching them.

The ideas-organizer exercises are a critical part of helping you focus on the readings and movies and learn from them, as well as helping you marshal and develop your own ideas and perspectives. They also form part of the course assessment, and contribute to your final grade.

ASSIGNMENTS

In addition to watching movies, completing the ideas-organizer exercises and engaging with instructors and other students on Yellowdig Engage, there are three assignments spaced throughout the course where you will be asked to write ~500 words about specific topics. The last of these is a self-reflection, where you will asked to discuss what you have learned with respect to the course objectives, and to provide evidence for this.

A TYPICAL MODULE (MODULES 2 - 6)

Instructor video. Each module will start with a 5 - 10 minute video from a course instructor that sets the scene, highlights key learning objectives, and primes you for what to look out for in the movies and the assignments.

Reading (~2 hours per module) Before watching each movie pair, you'll be required to either read two specified chapters from the class text (*Films from the Future),* or other material as listed in the syllabus and on Canvas. This will introduce the movies you'll be watching, provide a background to key areas of science and technology touched on in the movies, and explore some of the key themes around science, technology and society that the movies raise.

Ten Most Important Sentences (~1 hour per module) Following the readings, you'll be required to complete an ideas-organizer exercise that asks you to identify ten sentences from the readings that stand out to as being of interest/relevance.

Four Squared (~1 hour per module) Before watching the movies, you'll complete a graded ideas-organizer exercise where you'll be asked to identify **four** question you had from the readings, **four** things that you learned about science, technology and society from the readings, **four** ideas or topics you'll be focusing on while watching the week's movie that are inspired by the reading, and **four** common themes you'll be looking for across the two movies.

Watch movies (~4 hours per module) Once you've completed the four squared ideas-organizer, it's time to crack open the popcorn, sit back, and enjoy the movies! Using active viewing and your preparation from the readings and preceding ideas-organizer exercises, along with ongoing discussions on Yellowdig Engage, you'll be actively looking for how the movies provide new insights and perspectives on the complex relationships between technology, science, society and the future. The ideas-organizer exercise you'll complete following watching the movies will draw on them, so you might want to take notes. But you should also enjoy the movies as you watch them!

Movie Moments (~1 hour per module) After watching the movies, you'll complete an ideas-organizer that asks you to identify **three** things in each movie that grabbed your attention, **two** technologies that the movies highlight, and **four** ways in which the movies are relevant to ethical and socially responsible innovation.

Discussing new ideas, technologies, challenges and insights (~3 hours per module) Much of the learning in this class comes through the online discussions you'll have with other students using Yellowdig Engage. This is where you'll have the opportunity to share your ideas, thoughts and insights with others, and to respond to theirs. Through Yellowdig Engage, you will be able to earn points through posting your own comments, responding to others, and other people responding to you. We'll set the environment up so that there are multiple themes you can post on, including themes such as sci-fi movies, emerging technologies, ethical and responsible innovation, weird science, and breaking news. **You will need to be active on Yellowdig Engage through the week to earn full points each week.**

Innovation Insights (~1 hour per module) At the end of each module, you'll complete a graded ideas-organizer exercise that will be based on the week's book chapter, movie, class discussions, and Yellowdig Engage posts and discussions. In the exercise, you'll be asked to identify **three** things that you learned, **two** things that interested you, and **one** thing that surprised you.

Written assignments (~2 hour per module on average) In modules 2, 4 and 7, you'll have written assignment that help you develop and articulate your ideas around specific topics. The last one of these assignments will be a self-assessment of how you have met the learning objectives of the class through the course, drawing on your previous assignments and your Yellowdig Engage posts.

GRADED TASKS AND ASSIGNMENTS

Your final grade in this class will depend on the following tasks and assignments (see the next section for the grade structure):

ORIENTATION

At the start of the course, you will be expected to complete a number of short assignments that will help orient you to the course and ensure you are prepared what's to come! The orientation is not graded, but you cannot move on to module 1 until it has been completed.

TEN MOST IMPORTANT SENTENCES

After completing the readings for each module, you'll be required to complete an ideas-organizer exercise where you'll be asked to identify ten sentences from the readings that stand out to as being interesting/of relevance. You will need to quote each sentence in full.

You will be graded on completing the exercise, and demonstrating through it that you have read and thought about the readings. Points will be subtracted for partial assignments, or if it appears that you are not thinking about the sentences you select.

FOUR SQUARED

Before watching the movies, you'll complete a graded ideas-organizer exercise where you'll be asked to identify **four** question you had from the readings, **four** things that you learned about science, technology and society from the readings, **four** ideas or topics you'll be focusing on while watching the week's movie that are inspired by the reading, and **four** common themes you'll be looking for across the two movies.

Your responses to the Four Squared ideas-organizer are intended to guide your active watching of the movies, and your participation on Yellowdig Engage. It is essential that you read the relevant book chapters carefully before completing the thoughts-organizer.

You will be graded on completing the ideas-organizer with thoughtful responses. Points will be subtracted where there is little evidence that you have given much thought to your responses.

MOVIE MOMENTS

After watching the movies, you'll complete the Movie Moments ideas-organizer that asks you to identify **three** things in each movie that grabbed your attention, **two** technologies that the movies highlight, and **four** ways in which the movies are relevant to ethical and socially responsible innovation.

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You should use these ideas to inform your discussions on Yellowdig Engage.

You will be graded on completing the ideas-organizer with thoughtful responses. Points will be subtracted where there is little evidence that you have given much thought to your responses.

YELLOWDIG ENGAGE DISCUSSION

Between Module 2 and Module 6, you will be expected to engage with others around interesting ideas, information and perspectives, using Yellowdig Engage. If you haven't used this platform before, you are strongly encouraged to complete the orientation module in Canvas (in Module 0). This is a fun and engaging environment where you get to discuss your thoughts, ideas and insights with others, and get points for posts, responses to others, and others responding to you.

Each week, you will need to earn 2000 points to achieve the maximum Yellowdig Engage grade for that week. The good news is that your Yellowdig dashboard will show you how you're doing! But you need to make sure you're on the ball, as once a new week starts, you can't make up for missed points!

INNOVATION INSIGHTS

At the end of each module, you'll be required to complete an insights-organizer, where you'll be asked to identify:

1. **Three** things that you learned.

2. **Two** things that interested you. And

3. **One** thing that surprised you.

These should be based on the module's book chapters, the movies, the previous ideas-organizer assignments, and Yellowdig Engage posts and discussions.

You will be graded on completing the ideas-organizer with thoughtful responses. Points will be subtracted where there is little evidence that you have given much thought to your responses.

WRITTEN ASSIGNMENTS

Through the course, you will be asked to complete **three** written assignments that encourage you to dig deeper into some of the overarching themes of the course. For each assignment, you will be graded on the clarity with which you express your thoughts and ideas (including use of language and grammar), as well as the learning you demonstrate through these.

The four assignments are:

1. **Article 1:** A ~500 word article based on the prompt: "Why scientists, engineers and technologists should watch more science fiction movies." Your article will be graded against the rubric posted on Canvas, which includes grammatical accuracy, narrative flow, use of evidence, and originality.

2. **Article 2:** A ~500 word article based on the prompt "Just because we can, doesn't mean we should" and one of the following technologies: de-extinction, cloning, smart drugs, human

augmentation, or brain machine interfaces. Your article will be graded against the rubric posted on Canvas, which includes grammatical accuracy, narrative flow, use of evidence, and originality.

3. **Self-Assessment:** A ~500 word self-assessment that demonstrates the extent to which you have made progress toward each of the class' learning objectives. This should be a brief summary of evidence that draws from from your previous assignments and Yellowdig posts, as well as any other sources (including personal experience, or achievements in other classes). It should illustrate the degree to which you can demonstrate your learning and abilities against each learning objective. Your self-assessment can be informal. Your aim should be to show the course instructor what you have learned, so that they can rapidly assess your progress. You should include explicit evidence of your achievement within your self-reflection by excerpting and explaining parts of your reflections, or explicitly describing how presented evidence demonstrates your progress.

Your self-assessment will be graded based on the extent to which it illustrates progress toward each of the course learning objectives. Evidence of substantial progress toward each objective will be graded an A (or A+ if evidence of progress is exceptional). Limited progress, or limited evidence, will result in a self-assessment grade of B or lower.

Articles 1 is due at the end of module 3, article 2 is due before the end of module 4, and article 3 and the self-assessment are due by the end of module 7.

GRADING

GRADING

Your overall course grade will be determined based on the weightings below:

Ten Sentences	10%
Four Squared	10%
Movie Moments	10%
Yellowdig Engage	30%
Innovation Insights	10%
Article 1	10%
Article 2	10%
Self Assessment	10%

GRADING SCHEME

A-/A/A+	90.0-92.4/92.5-97.9/98-100	Excellent
B-/B/B+	80.0-82.4/82.5-87.4/87.5-89.9	Good
C/C+	70.0-77.4/77.5-79.9	Average
D	60.0-69.9	Passing
E	<60	Failure
XE		Failure due to Academic Dishonesty

[Note: in order to receive University Distribution requirement credit you must earn at least a "C."]

INCOMPLETES

A mark of "I" (incomplete) can be given by the instructor when you are otherwise doing acceptable work but are unable to complete the course because of illness or other conditions beyond your control. If you request an "I", you are required to agree with the instructor what you need to do to complete the course requirements. The arrangement must be recorded using the form at http://students.asu.edu/forms/incomplete-grade-request. Students should be proactive and discuss this with their instructor and TA before the end of the semester. Students who do not complete this form before the end of the semester cannot be given an incomplete and will be awarded a grade based on the work they have completed.

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LATE ASSIGNMENTS

If prior permission is sought (and granted) for submitting an assignment after the deadline, or if there are circumstances outside your control for a delay, there will be no grade penalty. Otherwise, assignments submitted after the set deadline will not be graded.

Yellowdig Engage points must be earned on a week by week basis—points cannot be retrospectively given for late posts.

GRADE APPEALS

ASU has formal and informal channels to appeal a grade. If you wish to appeal any grading decisions, please see: http://catalog.asu.edu/appeal

ACTIVE VIEWING

Sometimes (let's be honest, most times) it's great to sit down and let a movie wash over you — to experience it without thinking too much.

This is not how you'll be watching movies in this class. But don't worry — most of the movies you'll be watching are even better when you're concentrating on what they're saying, and what insights we might get from them.

We'll be using an approach called *active viewing*. This involves paying close attention and taking notes while watching the movies. But to help you, here are some simple guidelines:

Come prepared. Make sure you are primed before each movie, by having read the associated reading material and completed the Ten Sentences and Four Fours assignments.

Pay attention. Every aspect of a movie — from the music, to the atmosphere, to the subtle expressions and body language of actors — can convey information, and spark new ideas. Pay attention to everything!

Focus. Before each movie, you should have identified key ideas or topics in your Four Fours ideas-organizer. Actively look for anything in the movie that is relevant to these, and that stimulates interesting and new insights into them.

Be inspired. Embrace the serendipity of new and novel ideas and insights that you weren't expecting.

Make connections. Look for common threads between different movies. These might be similar ideas, or different perspectives on the same idea. But they could also be as simple as the same actor, or producer, or composer, being associated with different movies, or similar settings or locations, or narrative arcs. Be imaginative in the connections you make!

Listen to more than the words. The soundscape (including the music) of a movie carries with it an amazing amount of information, and can change how you perceive the movie!

Be critical — but don't get lost in your critique. be critical of the movie — challenge its assumptions, its plausibility, it's use or misuse reality and fiction, it's story telling. But don't let these spoil your enjoyment — "bad" movies can still inspire great ideas!

Make notes. Don't assume you'll remember any of those great ideas that struck you in the middle of a scene, if you didn't write them down.

Enjoy the movie. Active viewing should never mean boring viewing!

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IMPORTANT DATES

TBC

SCHEDULE

MODULE 0: ORIENTATION

Before classes begin, you'll be required to complete an orientation module on Canvas. This will include completing a course introduction, learning about active viewing, reviewing the course syllabus and schedule, taking the Yellowdig Engage crash course, and indicating your readiness for classes.

MODULE ASSIGNMENTS
• Getting Started Tasks
• Yellowdig Engage orientation

RECOMMENDED SCHEDULE
• Complete prior to week 1

MODULE 1: INTRODUCTION AND OVERVIEW

MODULE ASSIGNMENTS
• Watch the introductory video
• Read chapter 1 of *Films from the Future*.
• Complete the Ten Important Sentences ideas-organizer exercise

THEMES
We'll go over the course expectations, goals, objectives and format. We'll preview what's in store for the course, and dig into how emerging complex and powerful technologies might potentially affect up the future. We'll set the scene for exploring the intersection between science, innovation, society, human values, expectations and aspirations, through movies. We'll discuss the relevance of movies as an expression of imagination and creativity, together with the aesthetic experience they represent, as a way to gain insights into potential futures. And we'll talk about science and how it's portrayed in science fiction movies.

RECOMMENDED SCHEDULE
• Complete in week 1

MODULE 2: IT'S ALL IN THE GENES

"God help us, we're in the hands of engineers!" — *Dr. Ian Malcolm*

MOVIES

- Jurassic Park (1993)
- Never Let me Go (2010)

MODULE ASSIGNMENTS

- Watch the introductory video
- Read chapters 2 and 3 of *Films from the Future*.
- Complete the Ten Important Sentences ideas-organizer exercise
- Complete the Four Squared ideas-organizer exercise
- Watch the movies
- Complete the Movie Moments ideas-organizer exercise
- Engage on Yellowdig Engage
- Complete the Innovation Insights ideas-organizer exercise
- Complete Article 1 (prompt: "Why scientists, engineers and technologists should watch more science fiction movies")

KEY THEMES

When Dinosaurs Ruled the Earth. Gene editing, complexity, and social responsibility.

De-Extinction. The technology of bringing back extinct species.

Could We, Should We? The ethics and responsibility of cutting edge science.

The Butterfly Effect. "Chaos theory", and developing new technologies within complex and chaotic systems.

Visions of Power. Innovation in an age of mega entrepreneurs, and profit-driven science.

Sins of Futures Past. Cloning, human rights, social norms, and moral cowardice.

Cloning. The science, technology, and ethics, human reproductive cloning.

Genuinely Human? Evaluating the rights of individuals in the face of transformative technologies.

Too Valuable to Fail? Technology innovation and the moral imperative.

RECOMMENDED SCHEDULE

- Complete in week 2

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MODULE 3: IN YOUR HEAD

"If there's a flaw, it's human - it always is" — Danny Witwer

MOVIES
• Minority Report (2002)
• Limitless (2011)

MODULE ASSIGNMENTS
• Watch the introductory video
• Read chapters 4 and 5 of *Films from the Future*.
• Complete the Ten Important Sentences ideas-organizer exercise
• Complete the Four Squared ideas-organizer exercise
• Watch the movies
• Complete the Movie Moments ideas-organizer exercise
• Engage on Yellowdig Engage
• Complete the Innovation Insights ideas-organizer exercise

KEY THEMES

Criminal Intent. Predicting intent, pre-emptive justice, ethics of innovation, and the law.

The "Science" of Predicting Bad Behavior. The use of science and technology in attempts to predict criminal tendencies.

Criminal Brain Scans. fMRI, behavior prediction, and the ethics of pre-emptive justice.

Machine Learning Based Precognition. Using AI-based techniques to attempt to predict and prevent criminal behavior.

Big Brother, Meet Big Data. The challenges of making sense of privacy in a data-rich, interconnected world.

A Pill for Everything. Cognitive enhancement, equity, and intelligence.

The Seduction of Self-Enhancement. Introducing chemical substance-based approaches to chemical enhancement, and the drivers behind their development and use.

Nootropics. The science and technology of using pharmaceuticals to alter cognitive abilities.

If You Could, Would You? The ethics and norms of personal cognitive enhancement.

Privileged Technology. Social equity and differential access to future cognitive enhancements.

- Complete in week 3

MODULE 4: THE 99%

"They are armed, and I'd like them dead" - Carlisle

MOVIES

- Elysium (2013)
- Inferno (2016)

MODULE ASSIGNMENTS

- Watch the introductory video
- Read chapters 6 and 11 of *Films from the Future*.
- Complete the Ten Important Sentences ideas-organizer exercise
- Complete the Four Squared ideas-organizer exercise
- Watch the movies
- Complete the Movie Moments ideas-organizer exercise
- Engage on Yellowdig Engage
- Complete the Innovation Insights ideas-organizer exercise
- Article 2 due (prompt: "Just because we can, doesn't mean we should")

KEY THEMES

The Poor Shall Inherit The Earth. Social justice and access to technology innovation.

Bioprinting our Future Bodies. The emerging technologies behind 3D printing tissues and organs, and the opportunities and challenges they raise.

The Disposable Workforce. Workplace safety and justice in a technologically advanced future.

Living in an Automated Future. The challenges and opportunities of automation.

Decoding Make-Believe. Ideology, biotech, harmful intent, and responsible innovation.

Weaponizing the Genome. Genetic manipulation, dual-use innovation, gain-of-function research, and nefarious intent.

Immoral Logic? Bioethics, and the danger of justifying extreme actions on the basis of future extrapolation.

The Honest Broker. Bridging the divide between science and politics.

Dictating the Future. Exploring who decides which technological futures play out.

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RECOMMENDED SCHEDULE

• Complete in week 4

MODULE 5: AI FUTURES

"One day the AIs are going to look back on us the same way we look at fossil skeletons on the plains of Africa. An upright ape living in dust with crude language and tools, all set for extinction." — Nathan Bateman

MOVIES

• Ex Machina (2014)
• Transcendence (2014)

MODULE ASSIGNMENTS

• Watch the introductory video
• Read chapters 8 and 9 of *Films from the Future*.
• Complete the Ten Important Sentences ideas-organizer exercise
• Complete the Four Squared ideas-organizer exercise
• Watch the movies
• Complete the Movie Moments ideas-organizer exercise
• Engage on Yellowdig Engage
• Complete the Innovation Insights ideas-organizer exercise

KEY THEMES

Plato's Cave. Artificial intelligence (AI), permissionless innovation, and emergent risk.

The Lure of Permissionless Innovation. The pros and cons of innovation without checks and balances.

Technologies of Hubris. The myths, realities, opportunities, and dangers, of technological hubris.

Superintelligence. Framing the plausible challenges and opportunities of AI.

Artificial Manipulation. How vulnerable are we to being psychologically and socially manipulated by future AI?

Visions of the Future. Technological convergence and existential risk.

Technological Convergence. The emergence, nature of, and implications of, converging technologies and the Fourth Industrial Revolution.

Enter the Neo-Luddites. Exploring the moral boundaries between promoting and resisting innovation.

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Techno-Terrorism. The myths and realities of direct action opposing technology innovation.

Exponential Extrapolation. The dangers of extrapolating non-linear trends in tech innovation into the future.

RECOMMENDED SCHEDULE
• Complete in week 5

MODULE 6: SCIENCE IT UP

"Why can't you scientists leave things alone? What about my bit of washing, when there's no washing to do?" - Mrs. Watson

MOVIES
• The Man in the White Suit (1951)
• Contact (1996)

MODULE ASSIGNMENTS
• Watch the introductory video
• Read chapters 10 and 13 of *Films from the Future*.
• Complete the Ten Important Sentences ideas-organizer exercise
• Complete the Four Squared ideas-organizer exercise
• Watch the movies
• Complete the Movie Moments ideas-organizer exercise
• Engage on Yellowdig Engage
• Complete the Innovation Insights ideas-organizer exercise

KEY THEMES

There's Plenty of Room at the Bottom. Nanotechnologies, and control of the material world.

Mastering the Material World. Emerging trends in nanoscale science and engineering.

Myopically Benevolent Science. The potential consequences of well-intentioned but ill-conceived science and technology.

Never Underestimate the Status Quo. The tension between innovation and social/economic resistance.

It's Good to Talk. The importance of multi-stakeholder engagement in technology innovation.

An Awful Waste of Space. Science, belief, curiosity, wonder, and meaning.

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More than Science Alone. The dynamic between belief, passion, vision, purpose, and science.

Occam's Razor. Tempering imagination with critical thinking, and grappling with the limits of evidence.

What if we're not alone? What the possibility of extra terrestrial life says about us and our future.

RECOMMENDED SCHEDULE

• Complete in week 6

MODULE 7: WRAP UP

"Don't panic!" - The Book

MODULE ASSIGNMENTS

• Watch the introductory video
• Read chapter 14 of *Films from the Future*.
• Complete the Ten Important Sentences ideas-organizer exercise
• Complete the course self-assessment

RECOMMENDED SCHEDULE

• Complete in week 6