Swedish Public Television network, UR (like Sweden's version of the BBC), is coming to New Mexico Tech the first week of March 2013 to film a balanced documentary on how the present-day UFO movement is perceived by both believers and skeptics.

Students from this class are encouraged to attend, but any Tech student may apply. Student participants must be at least 18 years of age, and must sign a consent form for UR TV prior to taping.

http://www.passcal.nmt.edu/filmseminar/register
Top 3 Reasons that Space Travel is Impractical
Reason #1: Space is BIG
Reason #1: Space is BIG
Reason #1: Space is BIG

The fastest outward-bound spacecraft yet sent, Voyager 1, has covered 1/600th of a light-year in 30 years, and is currently moving at 1/18,000th the speed of light.

At this rate, a journey to Proxima Centauri would take 72,000 years.

With Solar Sails and such, we probably can get that down to a few thousand years.
Our sun is one of 100 billion stars in our galaxy. Our galaxy is one of billions of galaxies populating the universe. It would be the height of presumption to think we are the only living things in this enormous immensity.

— Wernher von Braun, New York Times interview, April 1960
Reason #2: Space = BIG BUCKS
Energy Budget for Space Travel

Worldwide Power Production per Year:
\[ E \approx 5 \times 10^{20} \text{ Joules (80-90\% fossil fuel)} \]
\[ \approx 150,000 \text{ TWh, Tera-watt hours} \]

*200 years (Industrial Age)
\[ E \approx 10^{23} \text{ J} \]
\[ = 100,000,000,000,000,000,000,000,000 \text{ Joules} = 1 \text{ “I.A.”} \]
How about that $10^{23}$ Joules?
(~ 200 years, the "Industrial Age")

All the cars, power plants, fireplaces, steam engines, hydroelectric plants, nuclear power plants, gas furnaces,...

For 200 Years = 1 I.A.
Energy Budget for Space Travel

Small Ship – Cruise Liner
~ 140 Million kg (No Fuel)
~ 340m x 56m x 63m
Fuel to accelerate to fraction X of c
4x - If wish to Come Home
Accelerate-Decelerate-Accelerate-Decelerate
Fuel-to-Payload Ratio: Large
How Big a Ship?

Freedom of the Seas is the largest luxury cruise ship in the world, owned by Royal Caribbean.

160,000 tons ~ 140,000,000 kilograms

1.4x10^8 kg
Oh, And Just One More Thing...

Professor Einstein says it's going to take a lot more energy than you thought to move things at speeds close to light...

\[ E_k = \frac{mc^2}{\sqrt{1 - v^2/c^2}} - mc^2 \]
## Energy Budget in IAs, Round Trip (Classical/Einstein Relativity)

<table>
<thead>
<tr>
<th>Speed</th>
<th>0.10c</th>
<th>0.99c</th>
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<tbody>
<tr>
<td>Weightless Fuel</td>
<td>2.52</td>
<td>247</td>
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<tr>
<td>2.54</td>
<td>3069</td>
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<tr>
<td>Fuel-to-payload ratio = 100</td>
<td>254.5</td>
<td>25,000</td>
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<tr>
<td>256.4</td>
<td>310,000</td>
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</table>
Energy Budget for Space Travel

That’s an astronomical expenditure, dwarfing modern budgets by orders of magnitude.

And for what? To abduct Betty & Barney Hill?
Reason #3: Space Travel will be **HARSH**...

If *we* were traveling through interstellar space at 90% of the Speed of Light, the silicon grain (0.00004 inches) would appear to have a kinetic energy of about 170 Joules – or, about the energy of a 22-caliber bullet (40 grains, 64.8 mg/grain) traveling over the speed of sound (about 1200 feet per second, or 366 meter/second)
Reason #3: Space Travel will be **HARSH**…

These particles will easily penetrate the hull of your ship. The inside of your space ship will be just like the inside of a huge atom smasher – you will quickly be cooked by subatomic nuclear particles.
Wormholes?
Not a Magic Bullet...

Hypothetical “Einstein-Rosen Bridges” (1935), called Wormholes in 1957 (Wheeler),

They have not been observed; they would probably be one-way, at best; a person or ship would probably be ripped to shreds during the journey; they would be unstable; and, like interstellar travel, would require exorbitant amounts of energy.
One more thing...Wormholes...

... might not always work the way you intended!
The Big Picture...

“Extraordinary claims require extraordinary evidence.” (Unicorns)

Fuzzy photographs and hypnotic memories are just too fallible...

What's needed is hard physical evidence:

a ship, a wrench, a limb, some blood...
The Rich Alien Fauna of New Mexico

Roswell

Aztec

Socorro
Something *did* crash in the desert near Roswell, in the summer of 1947…

… but, *What?*
Roswell: the Myth

4th July Weekend Crash caused by lightning storm, heard by witnesses, seen on radar;

Rancher found debris, took to sheriff, then Roswell Army Air Field; Military cordons, much secrecy.

Major Marcel sees debris, gouges; debriefed at Ft. Worth, where real debris is whisked to Wright Field, while “weather balloon” excuse is used as coverup.

Roswell mortician receives RAAF inquiries about small coffins; nurse tells of gruesome autopsies of aliens.

“Cosmic Watergate” continues to the present day; Majestic 12 group convened to study ship; autopsy film released; pictures, fragments brought forward.
Roswell, the Movie Version…
The debris was real. It was launched from Alamogordo, NM in June 1947, as part of an elaborate project, MOGUL, to detect Soviet nuclear tests.

The country was enthralled by the first UFO “Flap”, started by pilot Kenneth Arnold in June 1947.

Radar Reflectors on the 600-foot-tall MOGUL assemblies had flexible metallic paper, and were reinforced with tape by a toy manufacturer in Manhattan which crafted reflectors for the army. The tape bore strange “hieroglyphic” symbols.

Marcel thought the markings were alien, and the “Flying Disk” announcement was made. Gen. Ramey called Marcel to Ft. Worth, where the story ended.
Dawn of the Cold War
Project Mogul Balloon Train
C. B. Moore, NYU student, ‘47
The Alien “Hieroglyphics”

Dr. Jesse Marcel, Jr.'s recollection of Symbols on the Roswell UFO Debris

![Hieroglyphics](image)

While under hypnosis, Jesse Marcel, Jr. drew the symbols that were on the one I-beam he examined. Interestingly, these symbols do not resemble those published by others claiming to have knowledge of UFO’s.

Miller Johnson's Replica of the Roswell UFO I-Beam ($22)

![I-Beam Replica](image)

Prof. C. B. Moore's recollection of Symbols which appeared on NYU Radar Targets (Type ML-307B)

![Symbols](image)
Rancher Mac Brazel's description: smoky gray rubber (bundle 18-20" long, 8" thick), + tinfoil, paper, tape, sticks, (Bundle 3'-long, 7-8" thick bundle), all together weighing 5 lbs; No words, but letters; "scotch tape and some tape with flowers printed upon it had been used in the construction"
Was It a Space Ship?

Major Jesse A. Marcel, Sr. 1979 Interview.

“I believe it was nothing that came from earth. It came to earth, but not from earth.”

Asked by National Enquirer reporter Bob Pratt “This was obviously no rocket?”

“Oh no. Unh unh. I’ve seen rockets sent up at the White Sands testing grounds. It definitely was not part of an aircraft, nor a missile or a rocket.”
Genesis of the Roswell Incident

Krakatoa Volcanic Eruption, 1883
Was the Debris “Switched?”

FACT: there are photographs of the Roswell “Debris”, taken by J. Bond Johnson for the Dallas Morning Star-Telegram.

But, since these photographs clearly do not reveal a “spaceship,” but instead show material entirely consistent with a Project Mogul balloon train with reflectors …

UFO Believers are united in declaring the pictured debris an Air Force “Hoax”.
Was the Debris “Switched?”

Irving Newton, Gen. Ramey’s weather officer:
“While I was examining the debris, Major Marcel was picking up pieces of the target sticks and trying to convince me that some notations on the sticks were alien writing. There were figures on the sticks lavender or pink in color, appeared to be weather faded markings with no rhyme or reason. He did not convince me these were alien writings….”
Was the Debris “Switched?”

Clip from Showtime “Roswell” Movie

Newton: “He [Major Marcel] did not convince me these were alien writings….”

So, where's the “Humiliation”??
Roswell: Let the Hoaxes Begin
A Famous Roswell Hoax

Penthouse pays Big Buck$ for a Photo…

... of a Movie Prop!
A Famous Roswell Hoax
MEMORANDUM FOR THE SECRETARY OF DEFENSE

Dear Secretary Forrestal:

As per our recent conversation on this matter, you are hereby authorized to proceed with all due speed and caution upon your undertaking. Hereafter this matter shall be referred to only as Operation Majestic Twelve.

It continues to be my feeling that any future considerations relative to the ultimate disposition of this matter should rest solely with the Office of the President following appropriate discussions with yourself, Dr. Bush and the Director of Central Intelligence.

[Signature]

September 24, 1947.

THE WHITE HOUSE
WASHINGTON
MJ-12, Cosmic Watergate...

A Legitimate Letter from that time...
MJ-12, Cosmic Watergate...

The Signatures are identical...

Phil Klass
And the Alien “Autopsy”…

Alien Autopsy (Fox)

2006: John Humphreys fesses up!
The “Fragment” (IUFOMRC)

The “Fragment” And the Isotope Analysis
Growing Number of Crash Sites

“Now Where Was It Those Aliens Crashed?”
- By William P. Barrett

http://www.williampbarrett.com/CrossRos/index.htm
SyFy Channel Bait and Switch

The Bait: UNM
Archaeologist Bill Doleman

The Roswell Dig Diaries
A Sci-Fi Channel Book
Including Contributions From
William H. Doleman, Ph.D.,
Thomas J. Carey, and Donald R. Schnitt
Foreword by New Mexico Governor
Bill Richardson
The Switch: “Smoking Gun Ramey Memo”
Roswell, Fading Star?

Attendance at the Roswell UFO Annual Festival, 1997-2007

Meanwhile, More of the Same from Randle, Schmitt, Friedman, Balthaser, Bragalia, …
Will the Roswell Incident Go Away?

Follow the Money!
Aztec NM, 1948: “Behind the Flying Saucers”?

Published Sept. 8, 1950: author, Frank Scully (Variety)

“...sixteen humanoid bodies were recovered together with their undamaged craft. According to Scully's informants, the disk that landed near Aztec was 99.99 feet in diameter”

Behind the Flying Saucers was the first full-length American book on flying saucers, and it became a bestseller.

www.aztecufo.com/crash.htm
Meet The Venusians

Summary: It was the columnist Frank Scully who first alerted the world to sensational stories of recovered flying saucers and little men in his best-selling book Behind the Flying Saucers published in 1950. Scully claimed that up to that time there had been four such recoveries, one of which was alleged to have taken place around Aztec, New Mexico, when sixteen humanoid bodies were recovered together with their undamaged craft.

Left: Artist’s impression of the small bodies found aboard the downed craft, based on eyewitnesses’ descriptions relayed through intermediary contacts. (artist: Chan Johnson) Right: Line drawing of the 100’ diameter disc-shaped craft. (source: Steinman/Stevens)
OK, so what *Really* happened?

Silas M. Newton

Leo GeBauer
- “Dr. Gee”
J. P. Cahn,
The Aftermath (don’t look for this stuff in UFO Books…)

Denver Post, Oct. 14, 1952, front-page article, picture of Newton and Scully, headline “‘Saucer Scientist’ in $50,000 Fraud”
Aztec UFO Festival: R.I.P.

“2011 marked the last year for the annual Aztec UFO Symposium, which has taken place for the past 14 years. 'The symposium actually went on four years longer than anyone expected,' said Katie McClure, event organizer and vice president of the Friends of the Library Board.”
Socorro, NM, April 24, 1964

Officer Lonnie Zamora
The Craft... and Humanoids
OK, what was it This Time?

WSMR Surveyor Tests, 4-24-64

Small Bell Helicopter used as Support

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<th>A/C SUPPORT</th>
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<td>C-130</td>
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Early Surveyor Tests
While one Felot Warrior controls the bar, the others create a diversion!

Attention Felots: drop optical screens!

Hey! I've got something on the 'scope!

The Socorro sky suddenly fills up with Felot Saucers!

Uh, Ray...
Rest of the Story?

A CROWD BURSTS FROM THE BAR.
TO FIND THE JUST-RETURNED MAYOR.

TJ!! HERE? BUT—THE FELOT!

IT'S OK, FOLKS!
THAT WASN'T ME!

THE ONE IN THE BAR!
C'MON, I'LL TELL
YOU ALL ABOUT IT!

IT'S A FEW BLOCKS AWAY.

YOU ARE "DT".
EH? JUST HOW DID
YOU FIND OUT ABOUT
THE SCRUGS?
THE FELOTS?
THE COWS?
THE WAR?
WELL... HOW?

SOUR, EARTHLYNGS—
THERE WON'T BE
ANY MORE OF
THES COMIC STRIPS!

SURE! WELL,
YOU ARE COMING WITH US!

THE END
Other Possibilities

A Helicopter?

One of the early Hot Air Balloons?

A College Prank?

Long hypothesized, recently revived by Anthony Bragalia
Colgate’s Letter

UNIVERSITY OF CALIFORNIA, SAN DIEGO

DEPARTMENT OF CHEMISTRY
REVERE COLLEGE

June 19, 1960

President Stirling A. Colgate
New Mexico Institute of
Mining and Technology
Socorro, New Mexico 87801

Dear Stirling:

I am very pleased to have received your letter. I enjoyed visiting you at Socorro, and look forward to seeing you again. It is fine that you are getting so much effective work done.

Cordially,

Linus

Linus Pauling

P.S. Do you know Police Sergeant
Luis Zamora, of Socorro, who
reported seeing a flying saucer
on the ground on 24 April 1964? Sergeant Sam Chavez? What is
the XM178 feeling about this
incident? Linus
A Recent Visit

34.043028, -106.897331
Nuke Base Shutdowns?

Larry King Clip

Salas Clip

James Carlson, son of Captain (Retired) Eric D. Carlson
IRONY
The first real flying saucer is from Earth
And it landed on Mars.