

Mars for Earthlings

LESSON 22: Space Issues**Homework 1**

Future Mars Missions & Societal Issues_MFE

Cut a Budget: An ethical debate?

Objective: Critique the viewpoint of a proponent of increased NASA funding and cut a theoretical mission budget to fit NASA cut backs.

A Viewpoint on NASA funding

Watch the following YouTube video, narrated by Neil deGrasse Tyson, concerning the national budget and NASA. Neil deGrasse Tyson is an astrophysicist and director of the Hayden Planetarium.

Video: <http://www.youtube.com/watch?v=Fl07UfRkPas&feature=youtu.be>

1. Do you agree with any of Neil deGrasse Tyson's points?
2. Similarly, do you disagree with any of his points?
3. Do you find Dr. Tyson's line of argument flawed? If so, why?

A Proposed Budget

Below is a proposed hypothetical NASA budget with all budget elements compliant with NASA documentation:

<http://www.hq.nasa.gov/office/procurement/nraguidebook/proposer2013.pdf>

4. Scrutinize the budget and make a 30% cut to your budget. NASA will approve this mission if you can cut your budget by 30%. For reference on what each budget item means see the above .pdf url link. (1) Show and justify all changes you make to achieve the 30% cut. (2) Attach an extra sheet of paper for justification if necessary. (3) Add items you think are necessary.



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Proposed Budget
(Sample, direct costs)
Mission: Orbit Europa
Duration: 4 years

<u>Category</u>	<u>Sub-Category (#)</u>	<u>Cost per Unit</u>	<u>Cost Total (4 years)</u>
Direct Labor	PI- Scientist (1) (1FTE)	\$112,000	\$448,000
	Co-I Scientist (3) (1/2 FTE))	\$55,000	\$660,000
	Co-I Engineer (5) (1FTE)	\$95,000	\$1,900,000
	Co-I Educator (1) (1/2 FTE)	\$40,000	\$160,000
	Post-Docs (3)	\$48,000	\$576,000
	Graduate Students (7)	\$24,000	\$672,000
	Undergraduate Students (3)	\$3,000	\$36,000
Other Labor	Consultant- Science (2)	\$15,000	\$120,000
	Consultant- Education (1)	\$10,000	\$40,000
Equipment	Orbiter (includes thermal, power, navigation, launch vehicle, etc)	\$425,000,000	\$425,000,000
	Cameras (1)	\$31,000,000	\$31,000,000
	Spectrometer (1)	\$17,600,000	\$17,600,000
	Website development	\$40,000	\$80,000
Supplies	Publications	\$2,000	\$10,000
	Software	\$20,000	\$20,000
	Computer Stations	\$50,000	\$50,000
Travel	LPSC Meeting Registration	\$100	\$800
	AGU Meeting Registration	\$350	\$2,800
	AAAS Meeting Registration	\$400	\$3,200
	Per Diems (\$40/day /person)	\$320	\$10,240
	Airfare (roundtrip/person)	\$600	\$4,800
	Lodging (night/person)	\$140	\$4,480
	Transportation (trip/person)	\$40	\$960
Facilities/Administration	Imaging lab (yearly)	\$15,000	\$60,000
	Imaging rendering lab (yearly)	\$15,000	\$60,000
Mission Total			\$478,519,280

