SCHEDULE
ADVANCED ASTRONOMY CAMP

Julian Dates 2459753.41667 to 2459759.29167
(June 22-28, 2022)

"We cannot solve problems with the same level of thinking we used when we created them."
Albert Einstein

JUNE 22 (Wednesday)
Sidereal time at midnight: 17:42:11

"Imagination is more important than knowledge."
(Einstein)

3 pm	Opening presentation (Aloft Hotel; Tactic Room)	
	welcome and introductions	
	water bottles	
	"Question of the Day"	
4	Drive to Mt. Lemmon	
5:30	Move into dorms	
	dorm orientation	(Don, Kailey)
	dress warmly for the night	
	bring your flashlight	
6:30	Dinner	
7:32	Watch sunset	
	look for Green Flash, Earth's shadow, Belt of Venus, first stars	
	prepare telescopes for observing	
8	Dark adaption to music	
	safety orientations	
	"Music of the Night" (Phantom of the Opera) -- Andrew Lloyd Webber	
8:30	Observe the night sky on Mt. Lemmon	
	calibrate your fist's angular diameter	
	observe with 8, 24, 32" telescopes	
	naked eye & binoculars, DSLR & cellphone imaging	
	evening assignments:	
	find NSEW directions on your own.	
	watch the sky move and learn UT, RA, DEC, LST, HA	
9:12	End of astronomical twilight	
midnight	Snack and sleep	
3:40 am	Start of astronomical twilight	
4:25	Great Red Spot transits Jupiter	
5:19	Sunrise	

JUNE 23 (Thursday)

Sidereal time at midnight: 17:46:08

"Anyone who has never made a mistake has never tried anything new."
(Einstein)

5:19 am	Sunrise	
8	Wakeup	
8:30	Breakfast in the Learning Center	
9:15	**Quick overview** of Camp projects	
	Question of the Day	(Don)
	Research Projects and Proposals	(Don)
	Computing Technologies and Policies at Camp	(Austin)
	Chromebooks, laptops, Goggle, data archiving, cellphones	
	SMT Radio Research	(Samantha)
	First Contact Project	(Kailey, Wayne)
	Observing Challenge	(Olivia)
	Schedules: Cooking/cleaning, daily blog, …	
10:30	Walking tour of the mountain	
11:30	"***Observe the Sun"***	
12 pm	Lunch	
	staff meeting	
1	***"An Introduction to Light and Detection"***	(Don)
2	Planetarium rotation:	(Don, Wayne)
	Group activities (pairs of research teams):	
	Astronomical coordinates *(planetarium)*	
	First Contact Project	(in your teams)
3:30	Take a break!	
	bring back your flashlight	
4	***"The Cosmic Tango of Binary Stars"***	(Max)
5	Free time:	
	dress <u>warmly</u> for an evening of observing	
	prepare telescopes for observing	
6	Dinner	
	staff meeting	
7:32	Watch sunset	
8	Dark adaption at the 32" telescope	
8:15	Research projects at each telescope	
	8, 24, 32" telescope observing	
	one group at 61" telescope	
	ongoing: ***First Contact Project***	(team leaders)
9:12	End of astronomical twilight	
11	Snack and switch groups at 61" telescope	
0:16	Great Red Spot transits Jupiter	
2 am	Sleep	
2:13	Moonrise	
3:15	OPTION TO WAKEUP and observe alignment of 5 planets and Andromeda	
3:40	Start of astronomical twilight	
5:20	Sunrise	

JUNE 24 (Friday)

Sidereal time at midnight: 17:50:04

"The important thing is not to stop questioning. Curiosity has its own reason for existing." (Einstein)

5:20 am	Sunrise	
11:30	Wakeup	
noon	Brunch	
	"Question of the Day"	
	review of last night and plans for today	
	solar observing option	
1 pm	***"Radio Astronomy: Detecting Molecules in Space!"***	(Samantha)
	experience remote observing at the Sub-Millimeter Telescope (SMT)	
2	Teams meet to discuss and plan observing projects and proposals:	
	share ideas & compare notes	
	ask for help, advice, & ideas!!	
4	Submit telescope proposals	
4:30	"***A Zoo of Exoplanets*"**	(Ryan)
5:30	Free time:	
	dress warmly for an evening of observing	
	prepare telescopes for observing	
6	Dinner	
	Videos: The University of Arizona Mirror Lab and the GMT Project	
7:33	Watch sunset	
8	Dark adaption at the 32" telescope	
8:15	Research projects at each telescope	
	8, 24, 32" telescope observing	
	third group at 61" telescope	
	ongoing: ***First Contact Project***	(team leaders)
9:12	End of astronomical twilight	
11	Snack and switch groups at 61" telescope	
2:13	Moonrise	
3 am	Sleep	
	Observe alignment of 5 planets and Andromeda	
3:41	Start of astronomical twilight	
5:20	Sunrise	

JUNE 25 (Saturday)

Sidereal time at midnight: 17:54:01

"I have no special talents. I am only passionately curious." (Einstein)

POSSIBLE TRIP TO MT. GRAHAM OBSERVATORY (See schedule addition appended at the end.)

5:20 am	Sunrise

11:30	Wakeup	
noon	Brunch	
	"Question of the Day"	
	review of last night and plans for today	
	solar observing option	
1 pm	***"Cosmic Explosions: Radio Transients from Supernovae to Black Holes"*** (Yvette)	
2	Work on data reduction and projects	
4:30	Present results of research to date	
5:30	Free time:	
	dress warmly for an evening of observing	
	prepare telescopes for observing	
6	Dinner	
7:33	Watch sunset	
8	Dark adaption at the 32" telescope	
8:15	Research projects at each telescope	
	8, 24, 32, 61" telescope observing	
	ongoing: ***First Contact Project***	(team leaders)
9:12	End of astronomical twilight	
11	Snack and switch groups at 61" telescope	
midnight	Snack	
1:55	Great Red Spot transits Jupiter	
3:20 am	Moonrise	
3:41	Start of astronomical twilight	
4	Sleep	
5:21	Sunrise	

JUNE 26 (Sunday)

Sidereal time at midnight: 17:57:57

"The most beautiful thing we can experience is the mysterious."
(Einstein)

5:21 am	Sunrise	
11:30	Wakeup	
noon	Brunch	
	"Question of the Day"	
	review of last night and plans for today	
	solar observing option	
2	Work on data reduction and projects	
4:30	Present results of research to date	
5:30	Free time:	
	dress warmly for an evening of observing	
	prepare telescopes for observing	
6	Dinner	
7:33	Watch sunset	
8	Dark adaption at the 32" telescope	
8:15	Research projects at each telescope	
	8, 24, 32, 61" telescope observing	
	ongoing: ***First Contact Project***	(team leaders)
9:12	End of astronomical twilight	

midnight	Snack	
3:15 am	Observe alignment of 5 planets and Andromeda	
3:41	End of astronomical twilight	
4	Moonrise	
4	Sleep	
5:21	Sunrise	

JUNE 27 (Monday)

Sidereal time at midnight: 18:01:54

"The whole of science is nothing more than a refinement of everyday thinking."
(Einstein)

5:21 am	Sunrise	
noon	Brunch	
	"Question of the Day"	
	review of last night and plans for today	
1 pm	Continue working on projects, data reduction, and interpretation	
4	**Start presentations: *First Contact Project* and research**	
5:30	Begin cleaning rooms before eating	
	submit your Observing Journals	
6	Dinner	
	Seminar: ***"The College Experience & Career Choice"***	(everyone)
	"Alternatives to Professional Research Astronomy"	
7:33	Watch sunset	
8	**Continue presentations**	
	liquid nitrogen ice cream celebration after presentations	
9	Option to continue observing	
9:12	End of astronomical twilight	
midnight	Snack and sleep	
3:41 am	Start of astronomical twilight	
4:45	Moonrise	
5:21	Sunrise	

JUNE 28 (Tuesday)

Sidereal time at midnight: 18:05:50

"Everything should be made as simple as possible, but not simpler."
(Einstein)

	5:13 am	Sunrise	
	7	Wakeup	
		FINISH CLEANING & PACKING UP EVERYTHING!!!	
		You must have a counselor check you out of your room before breakfast.	
	8	Breakfast	
	9	**<u>MUST</u>** leave for Tucson	
**	11	Graduation ceremony	(Aloft Hotel; Tactic Room)

graduation is open to all families.

12 pm Leave for homes and Tucson airport
Lunch: You pay!

** Graduation is open to all families. It will begin at approximately 11-11:30 am.

POSSIBLE TRIP TO MT. GRAHAM (Depending on COVID, forest fires, …)

JUNE 25 (Saturday)

Sidereal time at midnight: 17:54:01

"I have no special talents. I am only passionately curious."
(Einstein)

5:12 am	Sunrise
9	Wakeup; brunch
	"Question of the Day"
	review of last night and plans for today
	solar observing option
10	Drive to Mt. Graham International Observatory
1 pm	Rest stop in Texas Canyon
	lunch items
3:30	Brief stop at Mt. Graham base camp
	get radios and permits
5:30	Arrive at Large Binocular Telescope (LBT)
	dress & prepare for nighttime observing
7:30	Tour the observing floor
7:33	Sunset
8	Dinner
8:30	Nighttime activities:
	throughout the night student teams rotate between LBT, SMT, projects
	stargazing by naked eye, binoculars, and portable telescopes
	Submillimeter Telescope (SMT) (Samantha, Yvette)
	rotate research teams every 90 minutes
	data reduction stations
	Ongoing: *First Contact Project,* data reduction (team leaders)
9:12	End of astronomical twilight
midnight	Snack
3:20 am	Moonrise
3:41	Start of astronomical twilight
4	Sleep
5:21	Sunrise

JUNE 26 (Sunday)

Sidereal time at midnight: 17:57:57

"The most beautiful thing we can experience is the mysterious."
(Einstein)

5:21 am	Sunrise	
9:30	Wakeup & breakfast	
	pack and clean	
11	Possible tours of the Large Binocular Telescope (LBT) and VATT	
noon	Depart for Tucson	
1 pm	Picnic lunch	
2	Drive to Tucson	
	rest stop in Wilcox	
6	Arrive at Mt. Lemmon	
6:30	Dinner	
7:33	Watch sunset	
8	Research projects at each telescope	
	8, 24, 32, 61" telescope observing	
	ongoing: ***First Contact Project***	(team leaders)
9:12	Start of astronomical twilight	
midnight	Snack	
	continue with research and ongoing projects	
3:15 am	Observe alignment of 5 planets and Andromeda	
3:41	End of astronomical twilight	
4	Moonrise	
4	Sleep	
5:21	Sunrise	

OPTIONAL ACTIVITIES

*"*Academic*"*:

Reading, videos, star catalogs & charts
Astronomy computer software
Mathematical, scientific, & logic puzzles
Talks on any astronomical or astrophysical subjects
3-D printing

Recreation:

Hike the Solar System to scale across scenic Mt. Lemmon
Basketball, volleyball, …

Informal Discussions:

Feel free to ask the Astronomy Camp staff questions about their hobbies, research interests, and experiences. Below is a sample of their interests.

Ryan Boyden
Formation of exoplanets and stars
Hiking

Yvette Cendes
Radio astronomy
Cosmic ray physics
Science journalism
Traveling, studying/living abroad

Kailey Hart
Technical theater
Fiction writing
Reading
Watching Doctor Who and Sherlock
Playing video games

Austin Holt
Carpentry, welding
Video games

Dr. Who
Debating
Orbital and rotational dynamics
Drawing and painting
Skiing

Olivia Jones
Roller Derby
UV instrumentation

Don McCarthy
Infrared astronomy
Throwing things!
Brown dwarfs & extra-solar planets
Long distance bicycling

Wayne Schlingman
Infrared/optical/radio astronomy
Stars and star formation
Astronomy education
Amateur photography
Fish keeping
Singing, music
Horticulture, geology
Digital planetarium technology

Samantha Scibelli
Eating, shopping
Crafting
Playing with my cat

Andrew Sevrinsky
Hiking, Running
Film
Comics
Board Games
Anything Involving Dogs

Joseph Wright
Observational astronomy
Education and public outreach

Rita Wright
Gardening
Reading
Astronomy outreach