
EARLY CAREER SPOTLIGHT
SHAWN DOMAGAL-GOLDMAN

1
00:00:19,080 --> 00:00:07,350
[Music]

2
00:00:20,580 --> 00:00:19,090
I've pretty much been are considered

3
00:00:22,260 --> 00:00:20,590
myself an astrobiologist my whole

4
00:00:24,569 --> 00:00:22,270
professional career from the day I

5
00:00:26,069 --> 00:00:24,579
started graduate school so before I was

6
00:00:29,220 --> 00:00:26,079
an astrobiologist I was an undergrad

7
00:00:31,019 --> 00:00:29,230
physics major that dreamed of working at

8
00:00:32,339 --> 00:00:31,029
Fermilab and you know finding some of

9
00:00:34,560 --> 00:00:32,349
the fundamental particles that

10
00:00:36,000 --> 00:00:34,570
everything is made of but and I grew up

11
00:00:38,329 --> 00:00:36,010
in Chicago that's where that's the

12
00:00:40,860 --> 00:00:38,339
reason I focused on Fermilab but I

13
00:00:42,360 --> 00:00:40,870

quickly gravitated towards astrobiology

14
00:00:44,790 --> 00:00:42,370
for a couple reasons one is that

15
00:00:47,460 --> 00:00:44,800
top-level question I just I love the

16
00:00:49,619 --> 00:00:47,470
question of are we alone and so my whole

17
00:00:52,320 --> 00:00:49,629
career has been in pursuit of that when

18
00:00:53,820 --> 00:00:52,330
the other part of it was I really

19
00:00:55,859 --> 00:00:53,830
enjoyed the fact that an

20
00:00:58,229 --> 00:00:55,869
interdisciplinary science like

21
00:01:01,140 --> 00:00:58,239
astrobiology requires us to interact

22
00:01:02,700 --> 00:01:01,150
with each other and so it's Raw's to the

23
00:01:04,920 --> 00:01:02,710
field a bunch of people who like

24
00:01:06,450 --> 00:01:04,930
interacting with other people and I like

25
00:01:08,399 --> 00:01:06,460
being in that kind of environment it's

26
00:01:10,320 --> 00:01:08,409
nice on the day-to-day to be around

27
00:01:12,840 --> 00:01:10,330
other human beings that want to talk to

28
00:01:14,160 --> 00:01:12,850
me which you don't always get in science

29
00:01:16,800 --> 00:01:14,170
and it's something I really appreciate

30
00:01:18,330 --> 00:01:16,810
about astrobiology you know we all have

31
00:01:20,100 --> 00:01:18,340
our detailed questions that we get

32
00:01:22,230 --> 00:01:20,110
focused on but the thing about

33
00:01:24,330 --> 00:01:22,240
astrobiology is it draws you up from

34
00:01:25,740 --> 00:01:24,340
those detailed questions you work on and

35
00:01:27,600 --> 00:01:25,750
your and your research and in your

36
00:01:29,310 --> 00:01:27,610
papers and it gets you talking to people

37
00:01:32,010 --> 00:01:29,320
from totally different fields whether

38
00:01:34,680 --> 00:01:32,020

it's by I'm a geologist by training of

39
00:01:36,149 --> 00:01:34,690
you know astrobiology in geology but I

40
00:01:37,890 --> 00:01:36,159
talk to physicists I talked to

41
00:01:40,200 --> 00:01:37,900
astronomer as I talk to biologists and

42
00:01:42,180 --> 00:01:40,210
chemists now that we're having an

43
00:01:45,690 --> 00:01:42,190
influence on missions at NASA I talk to

44
00:01:49,310 --> 00:01:45,700
engineers all the time and and so I and

45
00:01:51,270 --> 00:01:49,320
I enjoy that I I really appreciate

46
00:01:53,040 --> 00:01:51,280
representing the science I do to people

47
00:01:54,990 --> 00:01:53,050
that are smart enough to understand it

48
00:01:56,190 --> 00:01:55,000
and interested in it but aren't the

49
00:01:57,810 --> 00:01:56,200
people I'm competing with or

50
00:01:59,399 --> 00:01:57,820
collaborating with on a day to day basis

51
00:02:01,800 --> 00:01:59,409
in terms of the detailed research

52
00:02:03,899 --> 00:02:01,810
questions I look at now in terms of the

53
00:02:06,450 --> 00:02:03,909
transition I because I was interested in

54
00:02:08,850 --> 00:02:06,460
astrobiology I sought out a graduate

55
00:02:10,979 --> 00:02:08,860
program that had that as part of its

56
00:02:12,960 --> 00:02:10,989
part of its core curriculum so I went to

57
00:02:14,820 --> 00:02:12,970
Penn State and and the reason I did is

58
00:02:16,350 --> 00:02:14,830
they had actually at the time they were

59
00:02:19,740 --> 00:02:16,360
the only place in the country that

60
00:02:21,149 --> 00:02:19,750
offered a PhD in astrobiology I think

61
00:02:22,440 --> 00:02:21,159
there are two places that do that now

62
00:02:25,349 --> 00:02:22,450
Penn State in the University of

63
00:02:27,330 --> 00:02:25,359

Washington but for me I sought out

64
00:02:28,070 --> 00:02:27,340
astrobiology you know it didn't sort of

65
00:02:30,470 --> 00:02:28,080
come to me

66
00:02:32,000 --> 00:02:30,480
in my career it's something I wanted to

67
00:02:33,470 --> 00:02:32,010
do from the outset and so I found the

68
00:02:36,500 --> 00:02:33,480
places that would that would help me

69
00:02:38,630 --> 00:02:36,510
become a bonafide you know degree

70
00:02:40,100 --> 00:02:38,640
carrying astrobiologist that's that's

71
00:02:42,110 --> 00:02:40,110
something I set out to do from the start

72
00:02:44,240 --> 00:02:42,120
so for me I found out about it from a

73
00:02:45,380 --> 00:02:44,250
couple popular science books I read a

74
00:02:46,940 --> 00:02:45,390
lot of books when I was in high school

75
00:02:49,340 --> 00:02:46,950
in college that were just popular

76
00:02:51,650 --> 00:02:49,350
science and and a lot of the ones that I

77
00:02:54,080 --> 00:02:51,660
really enjoyed were about astrobiology

78
00:02:56,090 --> 00:02:54,090
and I think if I were to give advice to

79
00:02:57,710 --> 00:02:56,100
any of the students coming up or but

80
00:03:00,020 --> 00:02:57,720
anyone that's thinking about a career in

81
00:03:02,750 --> 00:03:00,030
science it would be to find that to find

82
00:03:04,610 --> 00:03:02,760
something you love and and and for me it

83
00:03:05,630 --> 00:03:04,620
was the search for life but I think if

84
00:03:07,520 --> 00:03:05,640
you're interested in astrobiology

85
00:03:09,290 --> 00:03:07,530
there's a second component to that which

86
00:03:11,390 --> 00:03:09,300
is you know I said I went to school in

87
00:03:13,670 --> 00:03:11,400
astrobiology but I went really to school

88
00:03:15,740 --> 00:03:13,680

in a geology department that gave me a

89
00:03:17,660 --> 00:03:15,750
degree in both geology and astrobiology

90
00:03:18,920 --> 00:03:17,670
and so really if you want to be an

91
00:03:20,960 --> 00:03:18,930
astrobiologist you need to love the

92
00:03:23,300 --> 00:03:20,970
search for life but you also need to

93
00:03:25,130 --> 00:03:23,310
find some disciplinary questions some

94
00:03:27,530 --> 00:03:25,140
you know area of research that you can

95
00:03:30,140 --> 00:03:27,540
apply to astrobiology and you have to

96
00:03:32,210 --> 00:03:30,150
love that as well and that's important

97
00:03:34,340 --> 00:03:32,220
because everything in life is

98
00:03:36,560 --> 00:03:34,350
competitive these days even if it's not

99
00:03:38,360 --> 00:03:36,570
competitive in the mean-spirited sense

100
00:03:40,010 --> 00:03:38,370
its competitive in the sense of to

101
00:03:42,170 --> 00:03:40,020
people you know gunning for a starting

102
00:03:44,990 --> 00:03:42,180
position on a sports team there's a

103
00:03:46,550 --> 00:03:45,000
limited number of positions of open in

104
00:03:48,110 --> 00:03:46,560
the field there's a limited amount of

105
00:03:49,910 --> 00:03:48,120
funding in the field and that means you

106
00:03:51,290 --> 00:03:49,920
have to work really really hard to be

107
00:03:54,080 --> 00:03:51,300
successful even if you're

108
00:03:56,660 --> 00:03:54,090
extraordinarily smart you still have to

109
00:03:58,400 --> 00:03:56,670
work extremely hard and that's a lot

110
00:04:01,220 --> 00:03:58,410
easier to do if you love what you're

111
00:04:02,510 --> 00:04:01,230
doing on a day to day basis so my advice

112
00:04:04,610 --> 00:04:02,520
to anyone that's considering

113
00:04:07,250 --> 00:04:04,620

astrobiology or any other sign any

114
00:04:08,870 --> 00:04:07,260
career in general is find something you

115
00:04:11,120 --> 00:04:08,880
love because it's going to be harder -

116
00:04:12,590 --> 00:04:11,130
it's going to be easier to work hard to

117
00:04:15,199 --> 00:04:12,600
pursue the things you're passionate

118
00:04:17,630 --> 00:04:15,209
about so when I first started out I

119
00:04:19,849 --> 00:04:17,640
worked in a lab that looked at rocks

120
00:04:21,740 --> 00:04:19,859
from the ancient most parts of Earth we

121
00:04:24,350 --> 00:04:21,750
call the Archaean earth and we're

122
00:04:25,970 --> 00:04:24,360
looking at specific isotopes of iron in

123
00:04:27,250 --> 00:04:25,980
those rocks basically different flavors

124
00:04:29,110 --> 00:04:27,260
of iron that have different

125
00:04:30,610 --> 00:04:29,120
to see if we could tease out the

126
00:04:32,830 --> 00:04:30,620
conditions that were present on earlier

127
00:04:35,350 --> 00:04:32,840
so that's relevant to astrobiology

128
00:04:37,360 --> 00:04:35,360
because this period of Earth I refer to

129
00:04:39,100 --> 00:04:37,370
as the most alien planet for which we

130
00:04:41,530 --> 00:04:39,110
have data everything was different about

131
00:04:43,330 --> 00:04:41,540
the planet back then now I don't do that

132
00:04:45,160 --> 00:04:43,340
stuff anymore I almost never go into a

133
00:04:46,960 --> 00:04:45,170
lab unless it's a tour of someone else's

134
00:04:49,840 --> 00:04:46,970
lab and the reason for that is frankly

135
00:04:51,190 --> 00:04:49,850
I'm a really bad lab scientist right if

136
00:04:52,960 --> 00:04:51,200
you put me in there with a bunch of

137
00:04:55,780 --> 00:04:52,970
chemicals I know I'm klutzy I know I'm

138
00:04:57,760 --> 00:04:55,790

bound to spill a bunch of stuff and so I

139
00:05:00,250 --> 00:04:57,770
I had to find a different path and and

140
00:05:03,010 --> 00:05:00,260
and I eventually found my way into labs

141
00:05:04,390 --> 00:05:03,020
that did simulations that that modeled

142
00:05:07,390 --> 00:05:04,400
the data either that we've uncovered

143
00:05:09,550 --> 00:05:07,400
from ancient earth or now I'm working on

144
00:05:11,470 --> 00:05:09,560
simulating the data that were uncovering

145
00:05:13,570 --> 00:05:11,480
from the Mars rovers and the Mars

146
00:05:15,130 --> 00:05:13,580
orbiters and from the telescopes we'd

147
00:05:17,260 --> 00:05:15,140
like to build to one day look for life

148
00:05:19,600 --> 00:05:17,270
on other worlds so there's a second

149
00:05:21,580 --> 00:05:19,610
aspect of it which is you have to find

150
00:05:23,320 --> 00:05:21,590
something you love to do but then you

151
00:05:25,000 --> 00:05:23,330
have to find something related to that

152
00:05:27,190 --> 00:05:25,010
thing you love that you're actually good

153
00:05:28,840 --> 00:05:27,200
at and for me I'm I knew I was not very

154
00:05:30,970 --> 00:05:28,850
good at lab work so I had to find

155
00:05:33,190 --> 00:05:30,980
something else that I was that leveraged

156
00:05:34,900 --> 00:05:33,200
my skills and turns out I'm a pretty

157
00:05:36,580 --> 00:05:34,910
good programmer and so that was that was

158
00:05:38,950 --> 00:05:36,590
a place I could do astrobiology and

159
00:05:40,540 --> 00:05:38,960
leverage skillsets that I had for me it

160
00:05:42,220 --> 00:05:40,550
was not a big deal to switch between a

161
00:05:44,100 --> 00:05:42,230
couple things but they were at sort of

162
00:05:46,000 --> 00:05:44,110
natural transition points you know I've

163
00:05:47,590 --> 00:05:46,010

when you as you go through your career

164
00:05:49,600 --> 00:05:47,600
from an undergraduate student to a

165
00:05:51,790 --> 00:05:49,610
graduate student to a postdoc maybe to a

166
00:05:54,010 --> 00:05:51,800
second postdoc and eventually to a

167
00:05:55,930 --> 00:05:54,020
permanent position every one of those

168
00:05:58,030 --> 00:05:55,940
career changes is an opportunity for you

169
00:06:00,370 --> 00:05:58,040
to pivot and put a slightly different

170
00:06:02,260 --> 00:06:00,380
direction to where you're heading and so

171
00:06:03,910 --> 00:06:02,270
for me I was a lab scientist as an

172
00:06:06,910 --> 00:06:03,920
undergraduate and as a master student

173
00:06:08,680 --> 00:06:06,920
and I realized that I was not that great

174
00:06:12,100 --> 00:06:08,690
at that and so when I went and got my

175
00:06:14,050 --> 00:06:12,110
PhD when I entered the the PhD program I

176
00:06:15,970 --> 00:06:14,060
found a way to pivot to being a modeler

177
00:06:17,950 --> 00:06:15,980
and not have to be in the lab so much

178
00:06:20,410 --> 00:06:17,960
anymore and then I've since since I got

179
00:06:22,360 --> 00:06:20,420
hired at Goddard I've pivoted again and

180
00:06:23,620 --> 00:06:22,370
now I'm working on mission design and

181
00:06:26,320 --> 00:06:23,630
mission development and I'm working with

182
00:06:27,880 --> 00:06:26,330
engineers all the time and so I every

183
00:06:29,920 --> 00:06:27,890
time you have a career change with a new

184
00:06:31,480 --> 00:06:29,930
position in it it's an opportunity even

185
00:06:33,460 --> 00:06:31,490
if you don't leave the field you can

186
00:06:35,470 --> 00:06:33,470
change what part of the field you're

187
00:06:37,270 --> 00:06:35,480
having an impact on and what what your

188
00:06:39,970 --> 00:06:37,280

day-to-day life is like in terms of what

189
00:06:40,490 --> 00:06:39,980
kind of work you're doing I really enjoy

190
00:06:42,740 --> 00:06:40,500
working

191
00:06:45,410 --> 00:06:42,750
and team-based environments and so you

192
00:06:46,910 --> 00:06:45,420
know if you really like not doing that

193
00:06:48,170 --> 00:06:46,920
if you like going off on your own and

194
00:06:50,270 --> 00:06:48,180
doing some detailed question and not

195
00:06:52,010 --> 00:06:50,280
being bothered by other people you can

196
00:06:53,870 --> 00:06:52,020
be successful in astrobiology but you

197
00:06:55,550 --> 00:06:53,880
might be happier in another discipline

198
00:06:58,160 --> 00:06:55,560
where you can do that stuff and aren't

199
00:07:01,100 --> 00:06:58,170
expected to to interact with other

200
00:07:02,900 --> 00:07:01,110
people on the other hand if you're like

201
00:07:04,880 --> 00:07:02,910
me and you really like interacting with

202
00:07:07,280 --> 00:07:04,890
other people astrobiology is great

203
00:07:08,720 --> 00:07:07,290
because not only are people asking you

204
00:07:10,880 --> 00:07:08,730
to do that but you're gonna be more

205
00:07:13,100 --> 00:07:10,890
successful because of your ability to do

206
00:07:15,440 --> 00:07:13,110
that by developing the skills to do that

207
00:07:17,570 --> 00:07:15,450
and and the things you are required to

208
00:07:19,370 --> 00:07:17,580
do to be successful are just going to be

209
00:07:23,270 --> 00:07:19,380
more enjoyable on your daily in your

210
00:07:25,880 --> 00:07:23,280
daily experience and for me I really

211
00:07:28,820 --> 00:07:25,890
like stepping into rooms and into

212
00:07:30,740 --> 00:07:28,830
conversations where I don't know a large

213
00:07:32,780 --> 00:07:30,750

part of what's going on you know a lot

214
00:07:35,090 --> 00:07:32,790
of astrobiologists especially senior

215
00:07:36,380 --> 00:07:35,100
scientists that are used to being the

216
00:07:38,360 --> 00:07:36,390
expert in everything that they ever

217
00:07:41,240 --> 00:07:38,370
discuss can be uncomfortable when

218
00:07:42,770 --> 00:07:41,250
they're put in a situation where a large

219
00:07:45,280 --> 00:07:42,780
part of the conversation is a bit

220
00:07:48,260 --> 00:07:45,290
foreign to them for me I relish that I

221
00:07:51,140 --> 00:07:48,270
think that's such a great place to learn

222
00:07:53,060 --> 00:07:51,150
new things and to broaden my education

223
00:07:54,680 --> 00:07:53,070
in a way that my formal background as

224
00:07:57,200 --> 00:07:54,690
the geologist and previously as a

225
00:07:59,030 --> 00:07:57,210
physicist never would have done and I

226
00:08:01,370 --> 00:07:59,040
know more things about biology and

227
00:08:03,230 --> 00:08:01,380
chemistry and engineering that I ever

228
00:08:05,150 --> 00:08:03,240
would know just based on the

229
00:08:06,560 --> 00:08:05,160
interactions I've had with other human

230
00:08:08,480 --> 00:08:06,570
beings that are my colleagues and the

231
00:08:11,990 --> 00:08:08,490
people that I work with and and for me

232
00:08:14,510 --> 00:08:12,000
that's it it keeps things fresh for lack

233
00:08:16,340 --> 00:08:14,520
of a better word it makes it so that the

234
00:08:18,050 --> 00:08:16,350
things I know today and I need to know

235
00:08:19,310 --> 00:08:18,060
today are totally different from the

236
00:08:21,380 --> 00:08:19,320
things I'm going to need to know five

237
00:08:22,880 --> 00:08:21,390
years from now and that means that five

238
00:08:25,100 --> 00:08:22,890

years from now this is all going to

239
00:08:28,070 --> 00:08:25,110
still feel really new and exciting and

240
00:08:28,429 --> 00:08:28,080
adventurous and I I really love that it

241
00:08:31,279 --> 00:08:28,439
from

242
00:08:36,290 --> 00:08:31,289
that that is that is a huge part of why

243
00:08:38,300 --> 00:08:36,300
I love my job as an astrobiologist so I

244
00:08:41,149 --> 00:08:38,310
I do think it's important to specialize

245
00:08:43,909 --> 00:08:41,159
I think you know every good scientist is

246
00:08:47,179 --> 00:08:43,919
the one of the world's few experts in

247
00:08:49,490 --> 00:08:47,189
some tiny corner of knowledge but but

248
00:08:52,249 --> 00:08:49,500
the question is where do you build the

249
00:08:54,019 --> 00:08:52,259
web that that that bit of knowledge is

250
00:08:55,670 --> 00:08:54,029
connected to do you just build it to the

251
00:08:57,530 --> 00:08:55,680
people that would normally be housed in

252
00:08:59,509 --> 00:08:57,540
the same department and in the same

253
00:09:02,059 --> 00:08:59,519
physical building on a university campus

254
00:09:04,129 --> 00:09:02,069
or do you build that Network out to

255
00:09:06,199 --> 00:09:04,139
other disciplines and other buildings on

256
00:09:09,259 --> 00:09:06,209
campus or maybe even other campuses or

257
00:09:11,569 --> 00:09:09,269
other kinds of institutions and it's

258
00:09:13,309 --> 00:09:11,579
that's it's that second part of it it's

259
00:09:16,189 --> 00:09:13,319
not you know whether or not you need to

260
00:09:17,990 --> 00:09:16,199
have some detailed expertise it's how

261
00:09:20,600 --> 00:09:18,000
you connect the thread of that expertise

262
00:09:22,910 --> 00:09:20,610
to other areas of knowledge and so what

263
00:09:24,829 --> 00:09:22,920

for me what that meant is I honestly

264
00:09:26,439 --> 00:09:24,839
took a little bit of flack when I was a

265
00:09:29,269 --> 00:09:26,449
graduate student and I would ditch

266
00:09:30,980 --> 00:09:29,279
colloquiums that frankly weren't really

267
00:09:33,769 --> 00:09:30,990
relevant to the big picture questions I

268
00:09:35,360 --> 00:09:33,779
wanted to be pursuing but instead of

269
00:09:37,340 --> 00:09:35,370
going to those I was making time to

270
00:09:39,530 --> 00:09:37,350
maybe go to a biology lecture or a

271
00:09:41,449 --> 00:09:39,540
chemistry lecture outside of the geology

272
00:09:43,999 --> 00:09:41,459
department I was in yeah there's no

273
00:09:46,670 --> 00:09:44,009
doubt that any collaborative endeavor an

274
00:09:49,550 --> 00:09:46,680
astrobiology is absolutely no exception

275
00:09:52,519 --> 00:09:49,560
every collaborative endeavor requires

276
00:09:54,860 --> 00:09:52,529
you to be an active collaborator this

277
00:09:56,629 --> 00:09:54,870
this doesn't work if all you do is go to

278
00:09:58,819 --> 00:09:56,639
a bunch of lectures and sit back and

279
00:10:00,650 --> 00:09:58,829
just you know try to absorb it right and

280
00:10:02,389 --> 00:10:00,660
it actually doesn't work if you also

281
00:10:04,939 --> 00:10:02,399
just go to lectures and just tell the

282
00:10:06,710 --> 00:10:04,949
audience what they want to hear it only

283
00:10:08,689 --> 00:10:06,720
works if the conversations you're having

284
00:10:10,730 --> 00:10:08,699
are more than just two directional they

285
00:10:12,679 --> 00:10:10,740
need to be happening with broader people

286
00:10:14,389 --> 00:10:12,689
throughout a room and I actually think

287
00:10:17,079 --> 00:10:14,399
that the best successes that we've had

288
00:10:18,790 --> 00:10:17,089

in astrobiology come when we're actively

289
00:10:20,480 --> 00:10:18,800
fostering these multi-directional

290
00:10:23,090 --> 00:10:20,490
conversations between all these

291
00:10:24,949 --> 00:10:23,100
different different disciplines but that

292
00:10:27,619 --> 00:10:24,959
requires you to be active and you have

293
00:10:29,329 --> 00:10:27,629
to be a participant in a conversation as

294
00:10:31,040 --> 00:10:29,339
opposed to just someone that's receiving

295
00:10:33,829 --> 00:10:31,050
or delivering knowledge to another

296
00:10:35,749 --> 00:10:33,839
person in terms of how you build your

297
00:10:37,759 --> 00:10:35,759
network it also requires you to be

298
00:10:38,960 --> 00:10:37,769
active in that regard

299
00:10:41,660 --> 00:10:38,970
it means that when you have

300
00:10:42,949 --> 00:10:41,670
opportunities to go to conferences that

301
00:10:44,689 --> 00:10:42,959
could expand your network across

302
00:10:47,660 --> 00:10:44,699
disciplines that you should take those

303
00:10:49,220 --> 00:10:47,670
opportunities I think where I was very

304
00:10:52,429 --> 00:10:49,230
fortunate to be amongst the first

305
00:10:54,199 --> 00:10:52,439
generation of astrobiology students that

306
00:10:56,960 --> 00:10:54,209
went to things like the astrobiology

307
00:10:58,879 --> 00:10:56,970
grad conference the AB grad con that was

308
00:11:01,129 --> 00:10:58,889
a place where I got to know people on a

309
00:11:04,819 --> 00:11:01,139
personal level there who were and still

310
00:11:06,739 --> 00:11:04,829
are my friends that that are part of my

311
00:11:08,749 --> 00:11:06,749
professional collaborative network now

312
00:11:11,079 --> 00:11:08,759
as well and having those opportunities

313
00:11:13,400 --> 00:11:11,089

where you can build really strong

314
00:11:15,169 --> 00:11:13,410
relationships with other humans whose

315
00:11:17,119 --> 00:11:15,179
knowledge is critical to your to your

316
00:11:19,069 --> 00:11:17,129
success is it's a big part of this so

317
00:11:21,679 --> 00:11:19,079
you know the active part is to search

318
00:11:23,479 --> 00:11:21,689
out those opportunities and then when

319
00:11:25,309 --> 00:11:23,489
you're in those environments be an

320
00:11:27,169 --> 00:11:25,319
active participant in the conversations

321
00:11:29,449 --> 00:11:27,179
that are going on those are those two

322
00:11:31,519 --> 00:11:29,459
things are both important I want to

323
00:11:35,059 --> 00:11:31,529
emphasize how important AB grad con is

324
00:11:37,879 --> 00:11:35,069
to this this whole endeavor we thrive on

325
00:11:39,889 --> 00:11:37,889
the ability of our science community to

326
00:11:41,809 --> 00:11:39,899
work together and to work together

327
00:11:43,549 --> 00:11:41,819
amicably so that if we have a

328
00:11:45,799 --> 00:11:43,559
disagreement about something we can work

329
00:11:47,629 --> 00:11:45,809
it out it also means that we have to be

330
00:11:49,369 --> 00:11:47,639
really efficient at exchanging knowledge

331
00:11:51,769 --> 00:11:49,379
between these different fields we can't

332
00:11:52,759 --> 00:11:51,779
get too tied down and jargon or else

333
00:11:55,579 --> 00:11:52,769
those those lines of communication

334
00:11:58,879 --> 00:11:55,589
aren't going to work and the brain is a

335
00:12:00,949 --> 00:11:58,889
funny thing you know it if you if you

336
00:12:03,379 --> 00:12:00,959
try to train human brains to communicate

337
00:12:05,480 --> 00:12:03,389
certain ways too late in life or too far

338
00:12:08,090 --> 00:12:05,490

after they've been trained as scientists

339
00:12:09,799 --> 00:12:08,100
it becomes harder to break down the

340
00:12:11,660 --> 00:12:09,809
communication barriers that get stood up

341
00:12:13,519 --> 00:12:11,670
because we rely on jargon we get trained

342
00:12:15,259 --> 00:12:13,529
to rely on jargon we get trying to

343
00:12:17,900 --> 00:12:15,269
communicate in specific ways to our

344
00:12:21,069 --> 00:12:17,910
specific disciplines and at grad Cohn is

345
00:12:24,400 --> 00:12:21,079
a way to train us as astrobiologists to

346
00:12:27,859 --> 00:12:24,410
communicate in a in a first-order way

347
00:12:29,419 --> 00:12:27,869
before those habits are set and at the

348
00:12:31,220 --> 00:12:29,429
same time you're just developing these

349
00:12:33,079 --> 00:12:31,230
wonderful personal relationships with

350
00:12:34,699 --> 00:12:33,089
people that are going to be hopefully

351
00:12:36,409 --> 00:12:34,709
colleagues for the rest of your career

352
00:12:38,090 --> 00:12:36,419
so there's two aspects of it first

353
00:12:40,369 --> 00:12:38,100
you're learning how to communicate in a

354
00:12:41,900 --> 00:12:40,379
way that your your home department might

355
00:12:44,059 --> 00:12:41,910
not train you to communicate and that

356
00:12:45,619 --> 00:12:44,069
your that is going to be a professional

357
00:12:47,390 --> 00:12:45,629
tool that you're going to you're going

358
00:12:48,680 --> 00:12:47,400
to be able to use later in your career

359
00:12:50,720 --> 00:12:48,690
if you're not a national biologist

360
00:12:52,490 --> 00:12:50,730
because even if you don't do any

361
00:12:54,890 --> 00:12:52,500
astrobiology research even if you aren't

362
00:12:56,720 --> 00:12:54,900
a scientist at all that ability to

363
00:12:58,910 --> 00:12:56,730

communicate to other intelligent

364
00:13:01,850 --> 00:12:58,920
knowledgeable human beings about what

365
00:13:04,490 --> 00:13:01,860
you care about is so critical to success

366
00:13:06,320 --> 00:13:04,500
and in addition to that it is the first

367
00:13:08,960 --> 00:13:06,330
steps of developing a career-long

368
00:13:10,790 --> 00:13:08,970
network of people that that are going to

369
00:13:12,710 --> 00:13:10,800
help you do your work so one of the

370
00:13:14,420 --> 00:13:12,720
things that is different from my job as

371
00:13:15,980 --> 00:13:14,430
a NASA civil servant versus someone

372
00:13:17,630 --> 00:13:15,990
that's a professor at a university well

373
00:13:19,520 --> 00:13:17,640
let me start by talking about what's

374
00:13:21,440 --> 00:13:19,530
similar first of all I have something

375
00:13:23,750 --> 00:13:21,450
that's kind of like 10 year I have job

376
00:13:26,060 --> 00:13:23,760
security just like many tenure faculty

377
00:13:28,490 --> 00:13:26,070
do I do a lot of research just like a

378
00:13:31,040 --> 00:13:28,500
lot of tenure faculty - I write

379
00:13:32,840 --> 00:13:31,050
proposals and a part coop eye on

380
00:13:34,340 --> 00:13:32,850
proposals to get a research team

381
00:13:36,170 --> 00:13:34,350
together of graduate students and

382
00:13:38,390 --> 00:13:36,180
postdocs and I get to advise students

383
00:13:40,520 --> 00:13:38,400
just like university faculty - those

384
00:13:42,380 --> 00:13:40,530
things are relatively similar and so if

385
00:13:45,080 --> 00:13:42,390
you view yourself as a researcher and

386
00:13:47,330 --> 00:13:45,090
someone that wants to do that NASA other

387
00:13:50,300 --> 00:13:47,340
National Labs are pathways to doing that

388
00:13:53,210 --> 00:13:50,310

that that aren't the exact same thing as

389
00:13:56,210 --> 00:13:53,220
a University tenured faculty member now

390
00:13:58,430 --> 00:13:56,220
what's different is ah the other stuff

391
00:13:59,510 --> 00:13:58,440
outside the research is is totally

392
00:14:01,820 --> 00:13:59,520
different from what I would have at a

393
00:14:03,500 --> 00:14:01,830
university if I was a faculty member and

394
00:14:06,380 --> 00:14:03,510
have a lot of teaching responsibilities

395
00:14:08,120 --> 00:14:06,390
my advising responsibilities would be

396
00:14:10,280 --> 00:14:08,130
more formalized whereas at NASA they're

397
00:14:12,590 --> 00:14:10,290
kind of like added on to the things I'm

398
00:14:15,410 --> 00:14:12,600
required to do at NASA I'm required to

399
00:14:17,240 --> 00:14:15,420
help the agency put together a science

400
00:14:19,280 --> 00:14:17,250
plan and then carry that out through

401
00:14:21,050 --> 00:14:19,290
spaceflight missions so I get involved

402
00:14:23,930 --> 00:14:21,060
in things like the Mars Curiosity rover

403
00:14:26,030 --> 00:14:23,940
I get involved in our design of future

404
00:14:28,640 --> 00:14:26,040
telescopes that would look for life on

405
00:14:31,280 --> 00:14:28,650
other worlds and and in in that role I'm

406
00:14:33,140 --> 00:14:31,290
interfacing with engineers interfacing

407
00:14:35,720 --> 00:14:33,150
with people that manage budgets and and

408
00:14:37,370 --> 00:14:35,730
and do programmatics to figure out how

409
00:14:38,870 --> 00:14:37,380
these things would actually get done or

410
00:14:41,690 --> 00:14:38,880
or in the cases of the ones that are

411
00:14:43,760 --> 00:14:41,700
flying or in or that I've landed on Mars

412
00:14:45,530 --> 00:14:43,770
already to think about what the next

413
00:14:46,760 --> 00:14:45,540

steps are going to be after that after

414
00:14:47,810 --> 00:14:46,770
that missions phone or with the

415
00:14:51,140 --> 00:14:47,820
engineers that are running the

416
00:14:52,340 --> 00:14:51,150
instrumentation on the fly and so it's a

417
00:14:55,340 --> 00:14:52,350
different group of people I'm

418
00:14:56,760 --> 00:14:55,350
interacting with I actually think both

419
00:14:59,040 --> 00:14:56,770
are great career paths

420
00:15:01,949 --> 00:14:59,050
and my advice is you know because there

421
00:15:04,290 --> 00:15:01,959
are so many PhD is being produced every

422
00:15:05,850 --> 00:15:04,300
year that if you're a graduate student

423
00:15:08,310 --> 00:15:05,860
or if you're thinking about going to

424
00:15:11,010 --> 00:15:08,320
graduate school and astrobiology or any

425
00:15:13,530 --> 00:15:11,020
other area of science you have to keep

426
00:15:14,790 --> 00:15:13,540
your options as open as possible so if

427
00:15:16,139 --> 00:15:14,800
you want to do research you should look

428
00:15:17,820 --> 00:15:16,149
at all the different kinds of

429
00:15:19,860 --> 00:15:17,830
institutions that will allow you to do

430
00:15:20,970 --> 00:15:19,870
that if you're interested in teaching

431
00:15:22,710 --> 00:15:20,980
you should look at all the different

432
00:15:25,199 --> 00:15:22,720
kinds of institutions that would allow

433
00:15:27,240 --> 00:15:25,209
you to do that and so you know for me I

434
00:15:29,100 --> 00:15:27,250
was really passionate about research I

435
00:15:30,990 --> 00:15:29,110
was really passionate about the missions

436
00:15:33,030 --> 00:15:31,000
I happen to also be very passionate

437
00:15:34,590 --> 00:15:33,040
about teaching as well there's no way

438
00:15:37,199 --> 00:15:34,600

one human being can do all those things

439
00:15:39,720 --> 00:15:37,209
so I I left myself open to applying for

440
00:15:41,360 --> 00:15:39,730
faculty positions civil servant

441
00:15:43,470 --> 00:15:41,370
positions I actually realized the

442
00:15:45,060 --> 00:15:43,480
astronaut corps wasn't that much more

443
00:15:46,590 --> 00:15:45,070
competitive than some of the faculty

444
00:15:47,910 --> 00:15:46,600
positions that are out there in terms of

445
00:15:51,030 --> 00:15:47,920
how many applicants I get so I actually

446
00:15:52,590 --> 00:15:51,040
apply to the astronaut corps and and

447
00:15:54,480 --> 00:15:52,600
eventually the the one that came through

448
00:15:56,400 --> 00:15:54,490
for me was the civil servant job that

449
00:15:58,560 --> 00:15:56,410
the job I have at NASA Goddard and I

450
00:16:00,449 --> 00:15:58,570
absolutely love it there I wish they had

451
00:16:02,550 --> 00:16:00,459
better public transit access to campus

452
00:16:04,510 --> 00:16:02,560
but everything else about my job at