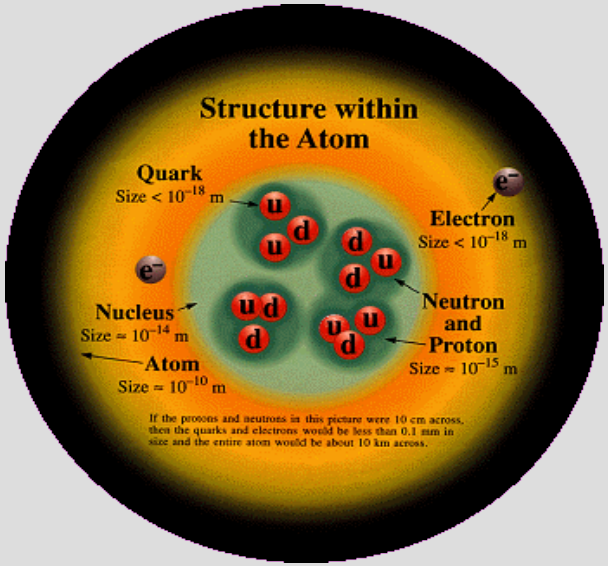
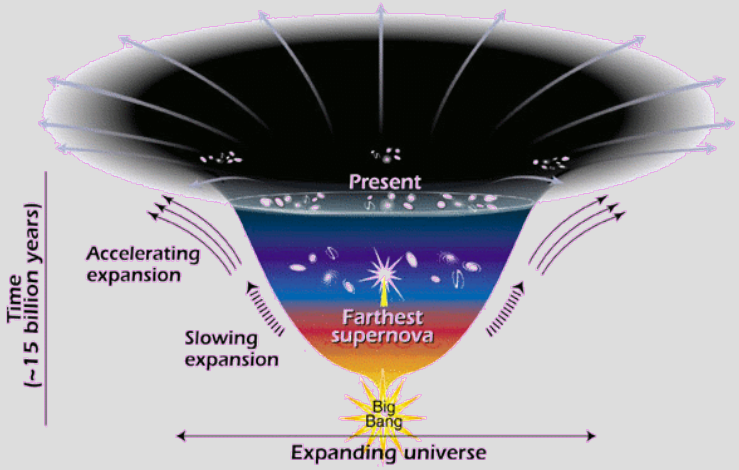
Introduction to Physics at SFU outline

- Why study physics?
- What courses do I need to take?
- What do students do after graduation?
- Concluding remarks





NASA/A. Riess

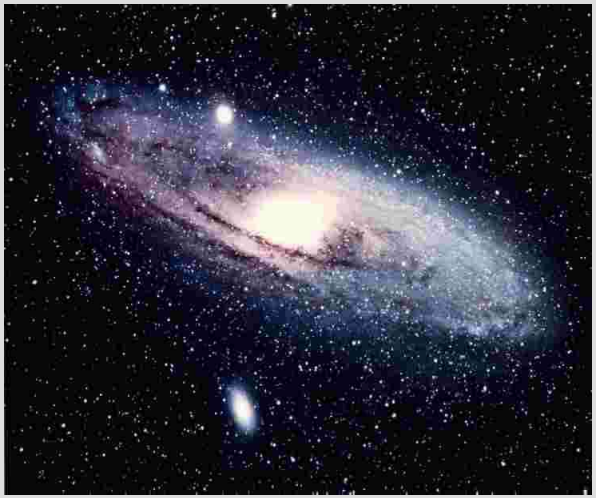
Why study physics?

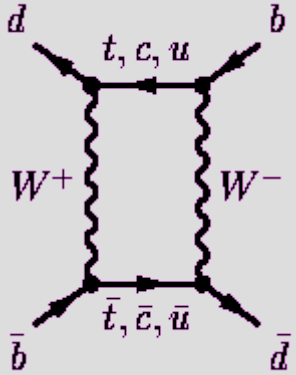
1) Physics is interesting!

2) Physics is useful!

3) Physicists are employable!

4) Physicists learn about almost everything!





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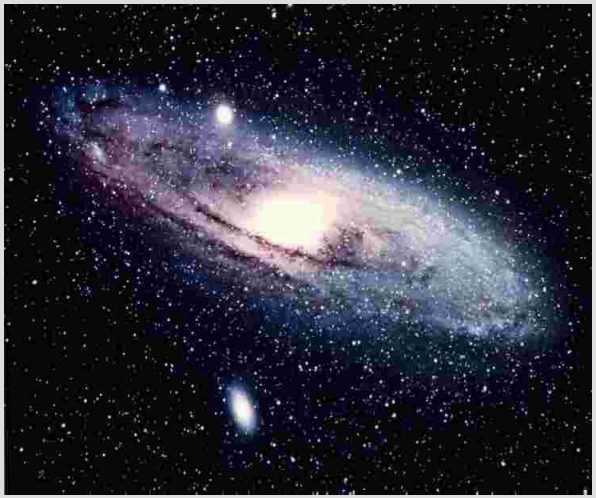
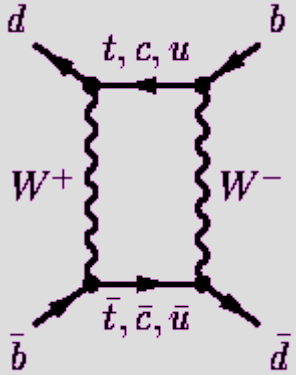


From the very big



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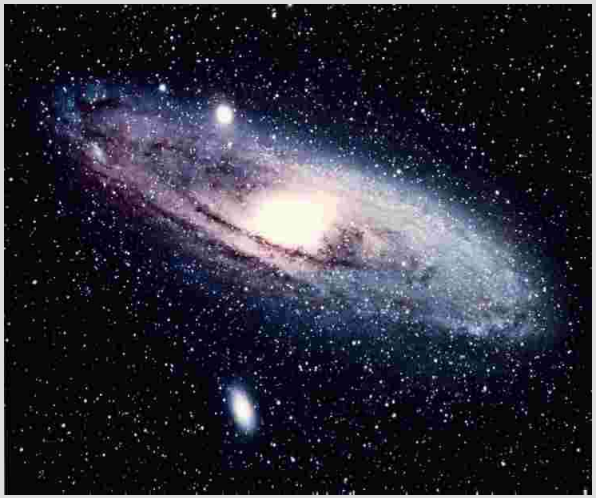
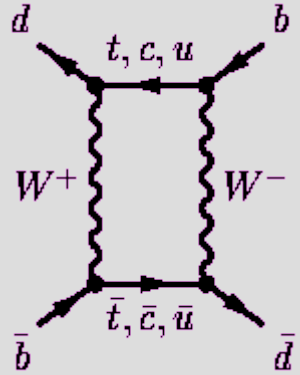
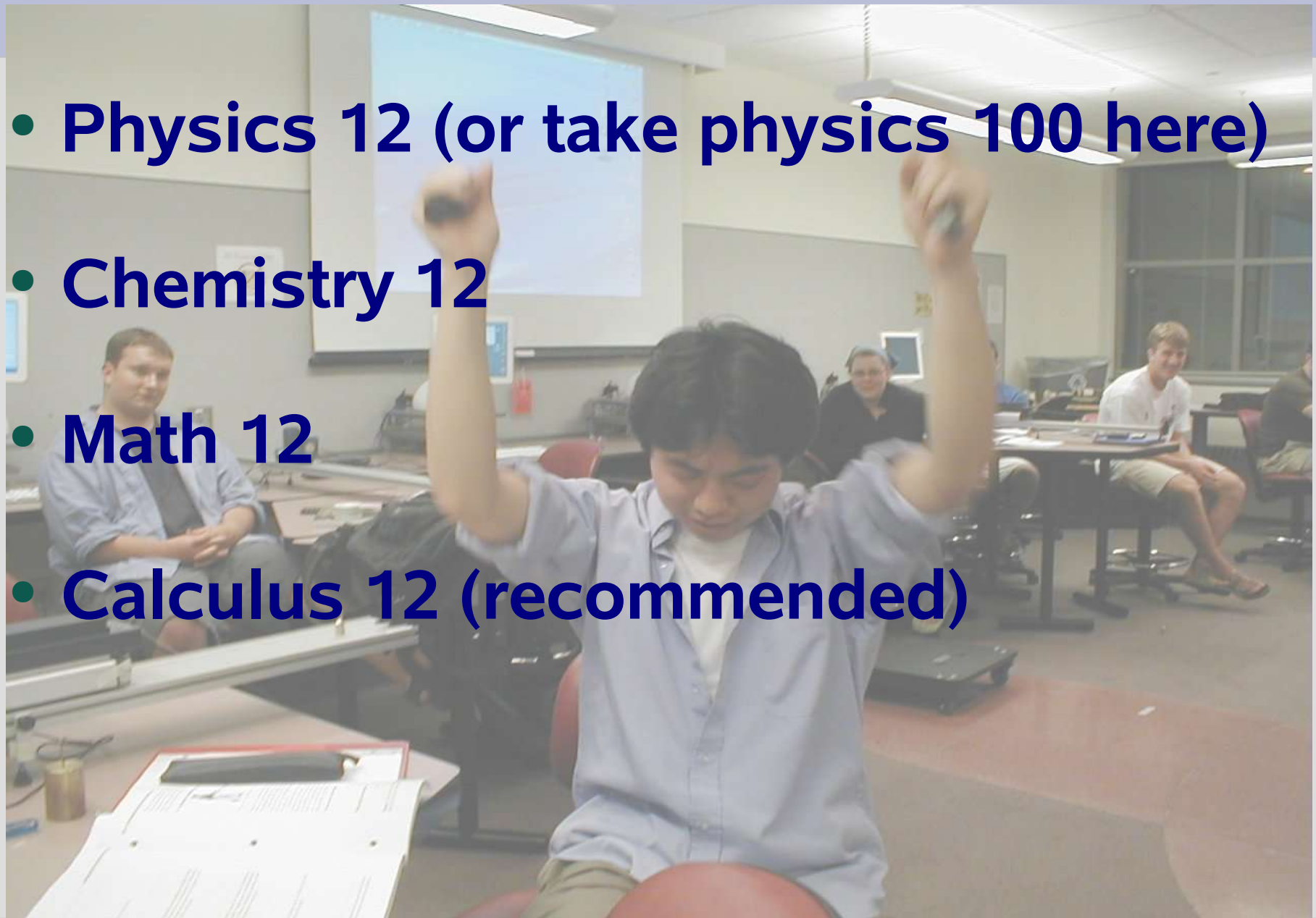


From the very big

To the very small



What courses do I need?



- **Physics 12 (or take physics 100 here)**
- **Chemistry 12**
- **Math 12**
- **Calculus 12 (recommended)**

First year streams

- **Physics 101/102/130: Life sciences stream. Designed for those intending to major in biosciences and kinesiology or who ultimately desire a career in the health sciences.**

- **Physics 120/121/131: Standard physical and mathematical sciences stream. For students who know that their academic future will require a strong background in physics even though they may be leaning towards a major in areas such as chemistry, molecular biology, earth sciences, environmental sciences.**

- **Physics 125/126/131: Designed for those who excelled at physics and math 12. A grade of 'A' in both physics and mathematics 12 is required.**

Studio physics

A new stream available at the SFU Surrey Campus

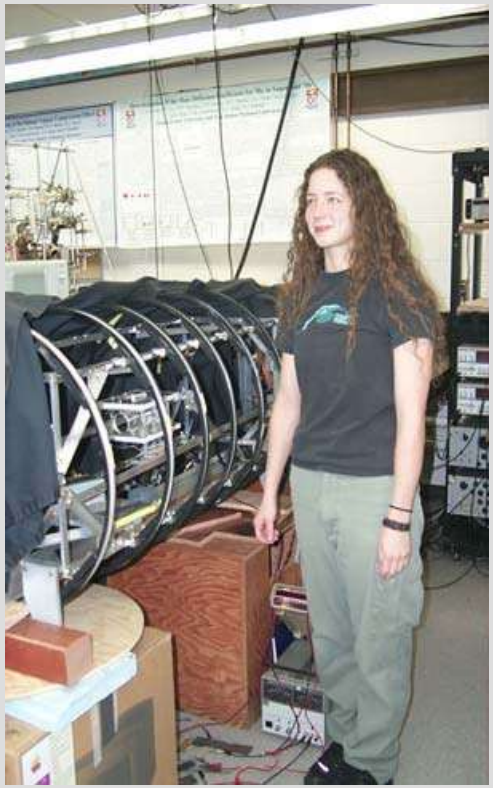
<u>Physics 140/141</u>: Incorporates lab and lecture together in a "hands on" approach to learning physics. Students completing this stream will have the equivalent of physics 120/121/131.

Physics degree programs

- **Physics (Honours, Major, and Minor)**
- **Applied Physics (Honours and Major)**
- **Mathematical Physics (Honours only)**
- **Chemical Physics (Honours and Major)**
- **Physics and Physiology (Honours only)**
- **Soon – Biological Physics.**

- *** A *nuclear science* minor is available with most options**
- ***Major: min 120 credit hours, minimum CGPA=2.0***
- ***Honours: min 132 credit hours, minimum CGPA=3.0***
- ***Minor: 14 upper division credit hours + prerequisites***

SFU physics filler slide



Physics co-op program

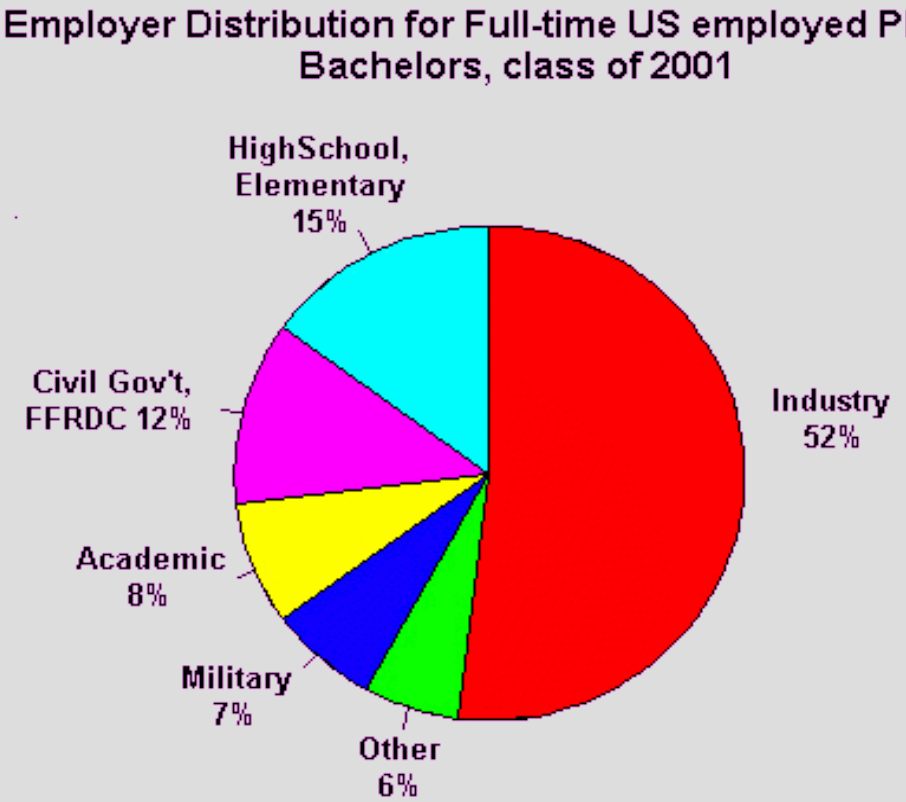
- Combines academic study with related work experience.
- Student spends 4 semesters off-campus in study related jobs
- Physics students find co-op positions in high tech industry, government labs, and university research labs

Some physics co-op employers

- TRIUMF
- E-One Moli Energy
- Ballard Technologies
- SFU physics department
- CreoScitex Products
- 3M Touch Systems
- National Research Council
- Vortek Industries
- Lightyear Technologies
- Eagle-Picher Energy
- WCB
- Process Simulations Ltd.
- QuestAir Technologies
- Shaw Cable Systems
- Many More...

After graduation?
(American Physical Society Survey)

- 40% enter the job market
- 40% physics graduate school
- 20% other grad school or professional program



Sector of Employment by level of highest physics degree 1994 (Source American Institute of Physics)

Employment sector	Bachelors (%)	Masters (%)	PhD (%)
Industry	42	33	21
Private sector (small companies, consulting)	19	27	9
Government	21	18	23
Academic	11	17	42
Other	7	5	5

Levitation (Harmless)

Demo: Levitation by the Meissner effect

- A magnet hovers in mid-air above a superconductor due to the fact that magnetic flux lines cannot penetrate the superconductor.