

# FEBRUARY 2018

- Agenda
  - Introductions and thanks to Microsoft
  - Quantum News
  - Food/Pizza
  - Quantum Computing refresher
- Presentations can be found at [github.com/NYCQuantumComputing](https://github.com/NYCQuantumComputing)
- Twitter @NYCQuantum
- Looking for hosts, presenters, topics, suggestions

# RECAP 2017

- 2017
  - Grover search, IBM's Quantum Experience, math behind Grover, DWAVE technical presentation, Chris Monroe from IONQ, Quantum Entanglement, Bell's Inequality, IBM presented QISKit, Nathan Weiße from Microsoft, Shor Discussion
- 2018
  - Refresher – thanks to everybody for helping

# EDX CLASS STARTING JANUARY 15, 2018

The screenshot shows the edX course page for "Quantum Information Science I, Part 1". The page features a large image of quantum states  $|\hbar\rangle + |\psi\rangle$ . The course title is "Quantum Information Science I, Part 1". A brief description states: "Want to learn about quantum bits, quantum logic gates, quantum algorithms, and quantum communications, and know some linear algebra but haven't yet learned much about quantum mechanics? This is the course for you!" The course is offered by MIT. The "About this course" section includes a list of topics such as the physics of information processing, quantum logic, and quantum error correction. It also mentions that the course will help establish a foundation for understanding quantum computers. The "Course Details" sidebar provides information on length (5 weeks), effort (11 to 13 hours per week), price (FREE, add a Verified Certificate for \$49 USD), institution (MITx), subject (Computer Science), level (Intermediate), language (English), and video transcripts. There is also a "Join Now" button and a note about receiving email from MIT.

edX Courses Programs Schools & Partners About Search: Sign In Register

Home > All Subjects > Computer Science > Quantum Information Science I, Part 1

## Quantum Information Science I, Part 1

Want to learn about quantum bits, quantum logic gates, quantum algorithms, and quantum communications, and know some linear algebra but haven't yet learned much about quantum mechanics? This is the course for you!

 Massachusetts Institute of Technology

### About this course

This course is part of a three-course series that provides an introduction to the theory and practice of quantum computation. We cover:

- the physics of information processing
- quantum logic
- quantum algorithms including Shor's factoring algorithm and Grover's search algorithm
- quantum error correction
- quantum communication and key distribution

This course will help you establish a foundation of knowledge for understanding what quantum computers can do, how they work, and how you can contribute to discovering new things and solving problems in quantum information science and engineering.

The three-course series comprises:

- 8.370.1x: Foundations of quantum and classical computing – quantum mechanics, reversible computation, and quantum measurement
- 8.370.2x: Simple quantum protocols and algorithms – teleportation and superdense coding, the

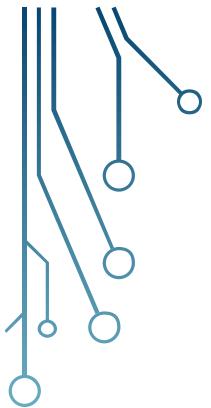
Length: 5 weeks  
Effort: 11 to 13 hours per week  
Price: FREE Add a Verified Certificate for \$49 USD  
Institution: MITx  
Subject: Computer Science  
Level: Intermediate  
Language: English  
Video Transcripts: English

Join Now Started on January 15, 2018

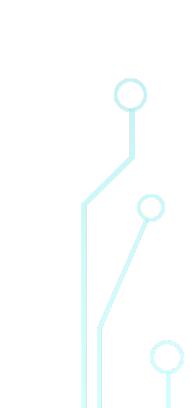
Enroll Now

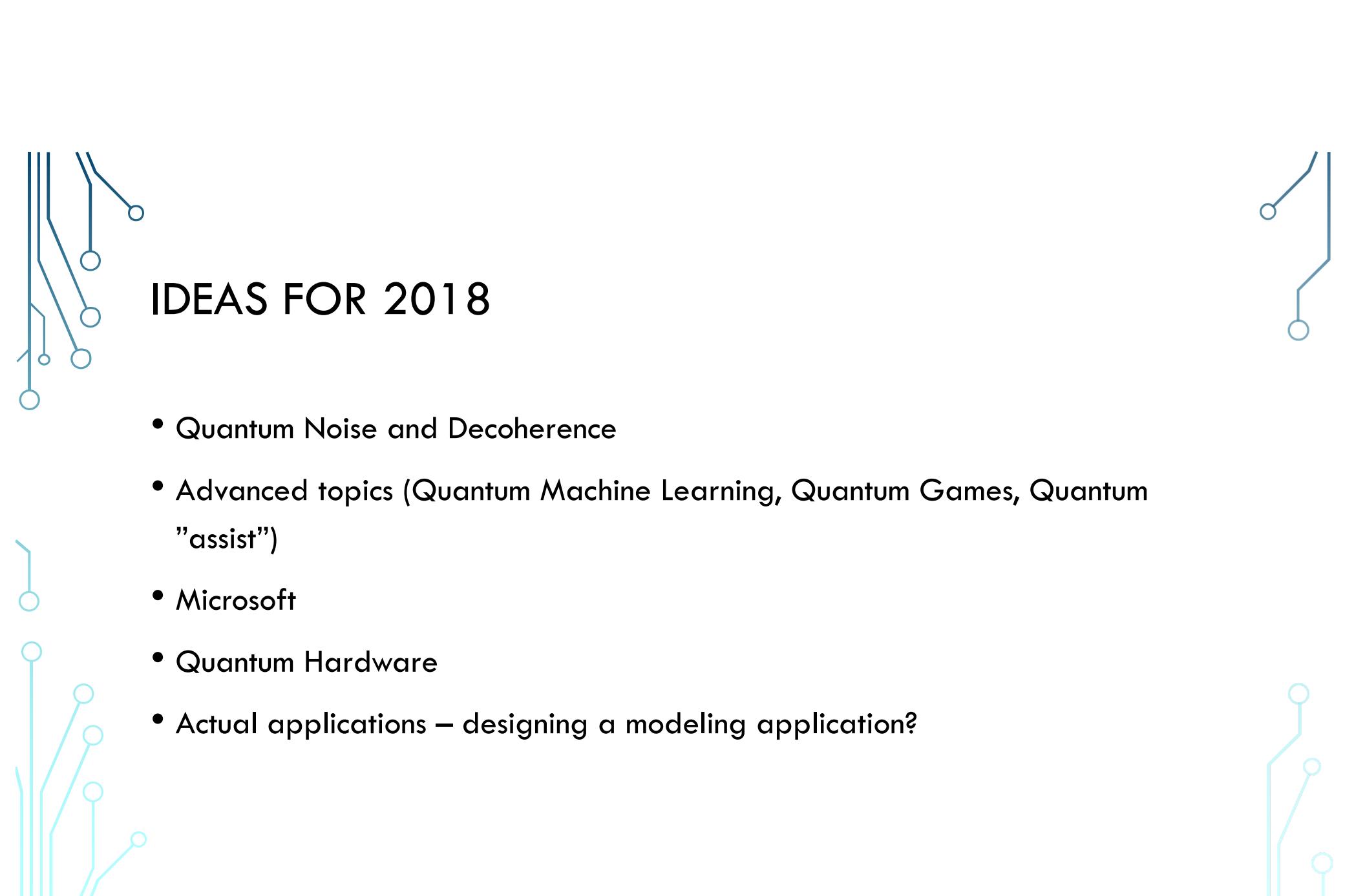
I would like to receive email from Massachusetts Institute of Technology and learn about other offerings related to Quantum Information Science I, Part 1.

Share this course with a friend



## NEWS / INTERESTING 2018

- “The Era of Quantum Computing Is Here. Outlook: Cloudy”
  - “Quantum race accelerates development of silicon quantum chip” (delft)
  - “Quantum Algorithms Struggle Against Old Foe: Clever Computers” (Quantum Magazine)
  - Unsupervised Machine Learning on a Hybrid Quantum Computer - Rigetti
  - “Quantum Computing in the NISQ era and beyond” – Preskill
  - Background pointers
    - <https://github.com/desireevl/awesome-quantum-computing/blob/master/README.md>
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## IDEAS FOR 2018

- Quantum Noise and Decoherence
- Advanced topics (Quantum Machine Learning, Quantum Games, Quantum "assist")
- Microsoft
- Quantum Hardware
- Actual applications – designing a modeling application?

# QUANTUM COMPUTING REFRESHER (JAN 2018)

- Thanks to Emma Strubell for permission to use her slides!
  - Introduction to Quantum Algorithms
    - [https://people.cs.umass.edu/~strubell/doc/quantum\\_tutorial.pdf](https://people.cs.umass.edu/~strubell/doc/quantum_tutorial.pdf)
  - Slides
    - [https://people.cs.umass.edu/~strubell/doc/quantum\\_presentation\\_1.pdf](https://people.cs.umass.edu/~strubell/doc/quantum_presentation_1.pdf)
    - [https://people.cs.umass.edu/~strubell/doc/quantum\\_presentation\\_2.pdf](https://people.cs.umass.edu/~strubell/doc/quantum_presentation_2.pdf)



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