From Interfaces to Iterators

- **We want to look at all the elements in an ArrayList**
- **We want to look at all the genomic sequences in a FASTA file**
- **We want to read all the words in a file**
- **We want to read all the lines in a file**

- *We want to iterate over a collection, obtaining the elements one at a time for processing*
  - **If we can develop a generic methodology for doing this, we can develop code without knowing the source of the data, just knowing there's a standard way to access data**

java.util.iterator

- **See code in IteratorMagic.java**
  - **How do we get an iterator?**
    - **Ask an object for one**
  - **What does the `next()` method return?**
    - **An object, how do we actually use the object?**
  - **What can we iterate over?**
    -

- **What about specialized iterators**
  - **Scanner has `nextString()`**
  - **SequenceIterator has `nextSequence()`**

Iterating over lists and setfs

- **What's difference between ArrayList and Set?**
  - **What does set store? ArrayList store?**
  - **How do we add elements to each?**

- **What about underneath the hood**
  - **What is behavior and state of ArrayList?**

  - **What is behavior and state of TreeSet?**
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- **How do we use libraries? Classpath?**
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David Gries

- **Advocates formal methods as integral part of program development**
  - **Formal means well-founded mathematically**
  - **Plays pingpong with ripped pants**
- *A programmer needs a bag of tricks, a collection of methods for attacking a problem. ... One technique will never suffice*
- **Has developed a CD-based book for learning Java with his son (uses singing!)**