What can I do with a bachelor’s degree in Biology?

Monday, May 18th
Holly Stessman
Human geneticist (ABMG)

• Physician: Many specialties are available to a physician.
• Doctor of Medicine (MD)
• Doctor of Osteopathy (DO)
• Dual MD/PhD degree
  – Clinical genetics (MD or DO – approx. 2-4 years additional training and board exam)
• PhD
  – Clinical cytogenetics, biochemical genetics, molecular genetics (MD, DO, or PhD – 2 years additional training + 1 additional year for each additional specialty and board exam)

http://www.abmgg.org/2015/cert_requirements.html
Basic research

• Principal investigator/professor
  – PhD + ~5 years of post-doctoral training
• Government laboratory
  – Both research & management tracks
• Industry laboratory (e.g., pharma, biotech, etc.)
• Staff scientists (PhD)
• Lab managers (M.S. or PhD)
• Lab staff (many levels B.S. -> M.S.)
• Core facility management/project consultant
Education

- K-12 education (B.A./B.S. + certificate)
- Community college (M.S. or PhD)
- College/graduate school/medical school (PhD or MD)


HHMI Science Education and Research Training: http://www.hhmi.org/programs/science-education-research-training
Things to Do with a Biology Degree

Health Related
Genetic Counseling
Bioethicist
Clinical Lab Sciences
Dietician
Pharmacist's Assistant

Math/Engineering
Bioinformatics
Biomechanical Engineering
Epidemiologist
Biometrician/Statistician
Nanotechnology
Medical Physics

Industry
Pharmaceutical Researcher
Drug Testing/QC
Food Safety Expert
Zymurgy (Beer/Winemaking)

Animal Care and Research
Zookeeper/Gamekeeper
Marine Mammal Trainer
Marine Biologist
Fisheries & Aquaculture

Legal
Forensics
Biotechnology Patent Law

Artistic
Medical Illustration
Bio-Animation and Films
Molecular Visualization

Environmental
Conservation Biologist
Forest Ranger
Environmental Scientist
Agricultural Scientist

Government
National Health (FDA, CDC)
City or Community Health Official
Bioterrorism Expert

JD/Ph.D.(M.S.)

- Four-year joint degree programs (JD/MS)
  - JD/MPH (law and public health)
- JD/PhD track (~7 years)
  - Apply and fulfill both tracks separately
  - Require the GRE and the LSAT
  - Tracks completed in parallel
- Potential careers: professor, in-house counsel with a corporation
- No law degree is required to sit for the patent bar exam!
Genetic Counseling (MSGC)

Role of a genetic counselor:
• Interpretation of family and medical histories to assess the chance of disease occurrence or recurrence
• Education about inheritance, testing, management, prevention, resources and research
• Counseling to promote informed choices and adaptation to condition

Basic requirements:
• Bachelor’s degree in biological or social sciences
• GRE
• Letters of recommendation
• Statement of academic and career goals
• Advocacy and/or internship experience

National Society of Genetic Counselors: http://www.nsgc.org/
American Board of Genetic Counselors: http://www.abgc.net/ABGC/AmericanBoardofGeneticCounselors.asp
Public Health

- Healthcare administration
- Clinical trials coordinator/protocol design
- Business (MBA)
  - Executive of pharma or biotech firm, human resources manager, fiscal manager, executive director of a professional society or non-profit
- Public health program analyst/evaluator
- Medical informaticist
  - Translational Bioinformatics
  - Clinical Research Informatics
  - Clinical Informatics
  - Consumer Health Informatics
  - Public Health Informatics

Epidemiology

- Investigate patterns and causes of disease and injury in humans in order to reduce the risk through research, community education, and health policy

- Requirements: MPH or PhD in Epidemiology

- Coursework: public health, biology, biostatistics

- Other careers:
  - Biostatistician
  - Predictive evolution/evolution trajectory
Science communications

• Science writing
  – online/print journalism (writers and editors), staff writing at university news offices/federal agencies/national labs/museums/zoo (ex. writer of technical manuals), multimedia work on internet/radio
  – Ex. 1 year certificate at UCSC in “Science Communication”

• Medical illustration (science + art)
  – Generally require a MS from an accredited 2-year graduate program in medical illustration + board certification
  – 4 programs in North America: [http://ami.org/medical-illustration/enter-the-profession/education/graduate-programs](http://ami.org/medical-illustration/enter-the-profession/education/graduate-programs)
  – Careers: marketing, books, web, law, apps, games, tv/film, virtual reality simulation
Science communications (cont’d)

• Outreach
• Recruiting
• Medical Science Liaison (MSL)
  – Possess advanced scientific training (PhD, PharmD, MD) and concentrate generally on specific diseases
  – Interface between physicians, academic institutions, clinics, and biotech
  – Well spoken, charismatic, well-paid, travel often

Medical Science Liaison Society: http://www.themsls.org/
Science communications (cont’d)

• Lobbyist
  – Hired by corporations to influence legislation
  – Strong communication skills required
  – American League of Lobbyists certificate program (11 sessions), internship/network, register as a lobbyist
Applied science

• Forensics genetics (highlighted by Tychele)
• Biotech
  – Technology specialist
  – Representatives
  – Start-up (high risk, high reward?)
  – Hybrid (academic-like industry)
• Medical/Clinical Laboratory Technologist
  – Usually require a bachelor’s degree in medical technology or life sciences + 1-year certificate program
  – Must be licensed on a state-by-state basis
What are your interests and aptitudes?

Discover who you are:
• What are your dreams?
• What are your interests?
• What are your abilities?
• What are your values?
• What experiences do you have?
Individual Development Plan (IDP)

You have put a lot of time and effort into pursuing your PhD degree. Now it's time to focus on how to leverage your expertise into a satisfying and productive career. An individual development plan (IDP) helps you explore career possibilities and set goals to follow the career path that fits you best.

myIDP provides:
- Exercises to help you examine your skills, interests, and values.
- A list of 20 scientific career paths with a prediction of which ones best fit your skills and interests.
- A tool for setting strategic goals for the coming year, with optional reminders to keep you on track.
- Articles and resources to guide you through the process.

There is no change to use this site and we encourage you to return as often as you wish. To learn more about the value of IDPs for scientists, read the first article in our myIDP series.

Click below to get started.

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http://myidp.sciencecareers.org/
To do or not to do a postbac...

http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2007_08_10/careedit.a0700114