



# Career in Mathematical Science

Dr. Ashani Dasgupta | [cheenta.com](http://cheenta.com)

PhD in Mathematics, University of  
Wisconsin-Milwaukee

# Two options



Academia



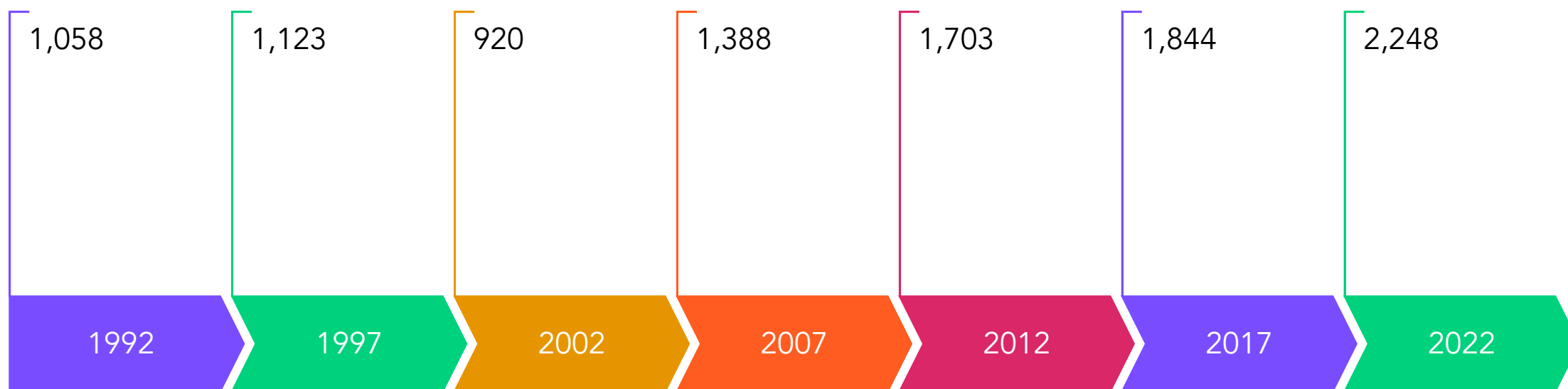
Industry

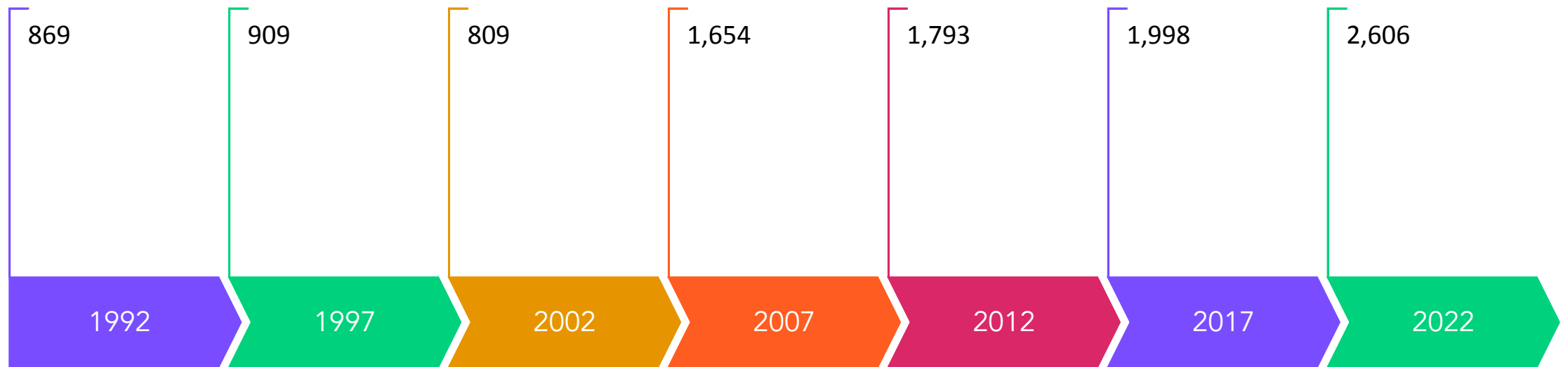
A pair of black-rimmed glasses with a slight curve to the temples is resting on an open book. The book has a red ribbon bookmark tied around it. The background is blurred, showing more of the book and a wooden surface. The text "In Academia" is overlaid in a white serif font in the upper right area.

In Academia

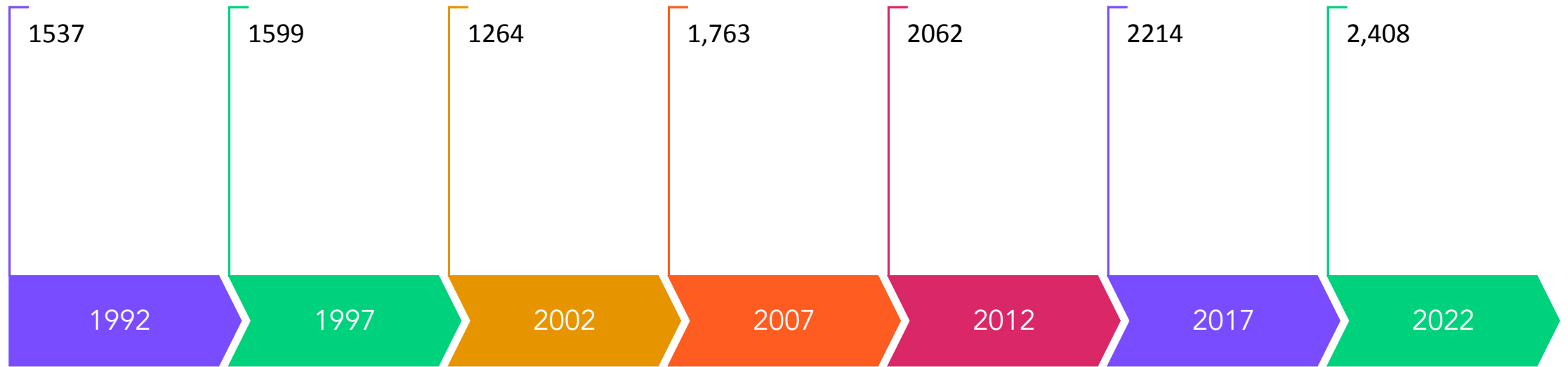
Teach, Research

# In Academia: PhDs in US (Math+ Stat)





In Academia: PhDs in US (CS)



In Academia: PhDs in US (Physics)

# In 5 to 10 years from now

Assume 4000+ PhDs in each of Math, Stat,  
Physics and Computer Science from the United  
States.

That is a total of 12000+ PhDs every year.



# Academia: Path to PhD, PostDoc

1

Step 1: An awesome Undergraduate Program

2

Step 1A: Masters is optional (save a year or two)

3

Step 2: Build a portfolio of Research Projects and Teaching related internships

4

Step 3: Choose a great PhD program

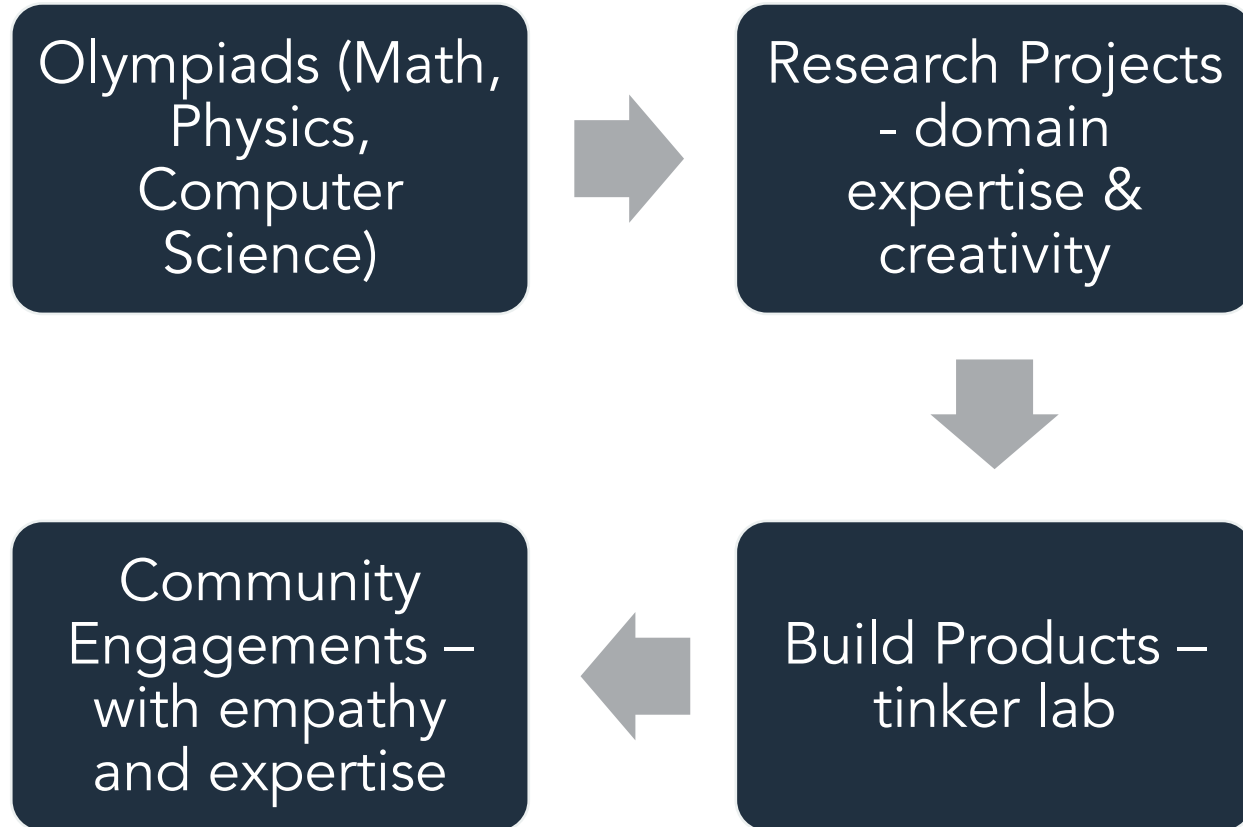


## Step 1: Preparing for Undergraduate Program

Do not build  
a profile

Build an  
experience

# Building a pre-college 'Experience'



# In India – Undergraduate

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Indian Statistical Institute (B.Stat - B.Math  
Entrance, BS Data Science)

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Chennai Mathematical Institute (BSc. Math  
Entrance)

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IISER - Indian Institute of Science, Education &  
Research (IISER Aptitude Test)

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National Institute of Science Education and  
Research

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University of Hyderabad (written entrance)

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IISc Bangalore, IIT Kanpur, IIT Mumbai  
(through IIT-JEE)

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Tier 1 Degree Colleges – RKMVU, Presidency,  
St. Xaviers, Loyola, St. Stephens, Hindu, BHU

Step 1A: Skip  
Masters or do it to  
gain expertise

A special skill

One  
application

## Step 2: Portfolio for PhD

Teach (and  
document)

Focussed Research  
Projects

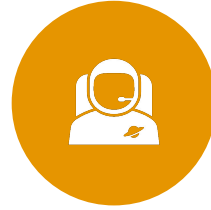
# Toward Industry



BUSINESS  
CONSULTANT



ACTUARIAL  
ANALYST



ASTRONOMER



DATA  
ANALYST



INVESTMENT  
ANALYST



SOFTWARE  
ENGINEER



STATISTICIAN

# Growth Forecast

- Employment of mathematical sciences is expected to grow by 26 percent, much faster than the average for all occupations, through 2028.

Source: Occupational Outlook Handbook, United States



# Certifications, Diplomas and (Second) Degree Online



IIT Madras offers BS in Data Science (Online Degree)



University of Illinois at Urbana Champaign,  
Ohio State University



Google Cloud – Professional Cloud Architect



Google Cloud – Professional Data Engineer



Chartered Financial Analyst



There are many more...



# Books for Grade 1 to 6

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Math Circles for Elementary  
School Students by Natasha  
Rozhkovskaya

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Math from Three to Seven: The  
Story of a Mathematical Circle for  
Preschoolers by Aleksandr  
Kalmanovich Zvonkin

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Mathematics can be fun by Yakov  
Perelman

# Books for Grades 7 to 8



Math Circles by Fomin



Algebra by Gelfand



Geometry by Kiselev



Lines and Curves by Vasiliyev

- Challenges and Thrills of Pre College Mathematics by Ventakchala
- Test of Mathematics at 10+2 Level
- Complex Numbers from A to Z by Titu Andreescue
- Geometric Transformations by Yaglom
- Geometry Revisited

## Books for Grades 9 and above