

# Re: prerequisite to Differential Geometry

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vartkar@xxxxxxxxxxxxx wrote:

Could someone tell me what are the prerequisites to differential geometry.  
Is it just plain geometry and differential equations?

It depends at what level you will be studying it, and with which textbook. At the undergraduate level, you might just need a could multivariable course. Linear algebra would help. Really nothing else was a prerequisite for my undergraduate course, which used the text by Millman and Parker, though some topology and real analysis might help.

For a graduate level course, you certainly need topology and analysis. Algebraic topology (for which you need some abstract algebra) would help.

You do not need differential equations anywhere, really. And I agree with quasi that physics might provide motivation for some of the subject.

However, I respectfully disagree with quasi when he mentions

Differential Equations  
Abstract Algebra  
Tensor Analysis  
Complex Analysis  
Modern Geometry (especially Non-Euclidian geometry)  
Lie Groups & Lie Algebras

Differential equations don't show up much, if at all. My impression is you need only a few basic concepts from abstract algebra and complex analysis; if you haven't seen these before, you can pick them up along the way. I consider vector analysis included in multivariable calculus. You will learn what you need of the rest in the course of studying differential geometry.

Most of the calculus, analysis, topology, and linear algebra you will need for a first course is contained in

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Spivak's Calculus on Manifolds.

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