

WWW links for Mathematics 138A notes

General statements about the use of Internet resources appear in the document listed below. We shall give separate lists of links for each of the relevant files in the course directory.

<http://math.ucr.edu/~res/math205AA/aabInternetresources.pdf>

We shall give lists of clickable links for each file in the course directory which contains Internet references without clickable links. Since this list is fairly long, links to specific files in the course directory <http://math.ucr.edu/~res/math138A-2012> will not be included.

0. These are clickable links for the file containing general information about the course; namely, <http://math.ucr.edu/~res/math138A-2012/aabInformation138A-2012.pdf>.

<http://math.ucr.edu/~res/math10A>

<http://math.ucr.edu/~res/math10B>

<http://math.ucr.edu/~res/math132>

<http://www.specialservices.ucr.edu/swd/default.html>

<http://www.specialservices.ucr.edu/swd/aboutus.html>

1. These are clickable links for <http://math.ucr.edu/~res/math138A/dgnotes2012.pdf> (the course notes).

I. Classical Differential Geometry of Curves

<http://www-gap.dcs.st-and.ac.uk/~history/Curves/Curves.html>

http://www.xahlee.org/SpecialPlaneCurves_dir/specialPlaneCurves.html

<http://facstaff.bloomu.edu/skokoska/curves.pdf>

<http://people.math.gatech.edu/~ghomi/LectureNotes/index.html>

http://en.wikipedia.org/wiki/Differential_geometry_of_surfaces

<http://www.math.uga.edu/~shifrin/ShifrinDiffGeo.pdf>

<http://www.seas.upenn.edu/~cis70005/cis700sl6pdf.pdf>

<http://www.cs.berkeley.edu/~sequin/CS284/TEXT/diffgeom.pdf>

<http://www.math.uab.edu/weinstei/notes/dg.pdf>

<http://www.wisdom.weizmann.ac.il/~yakov/scanlib/hicks.pdf>

<http://math.ucr.edu/~res/math153/history04Y.pdf>

<http://math.ucr.edu/~res/math153/history04b.pdf>

<http://www.ms.uky.edu/~carl/ma330/hippias/hippias2.html>

http://en.wikipedia.org/wiki/On_Spirals

I. 1. Cross products

<http://math.ucr.edu/~res/math133/geomtrynotes1.pdf>

<http://www.math.niu.edu/~rusin/known-math/95/prods>

<http://www.math.niu.edu/~rusin/known-math/96/octonionic>

I. 2. Parametrized curves

<http://math.ucr.edu/~res/math153/transcurves.pdf>

<http://math.ucr.edu/~res/math153/transcurves2.pdf>

<http://math.ucr.edu/~res/math153/transcurves3.pdf>

I. 3. Arc length and reparametrization

http://en.wikipedia.org/wiki/Elliptic_integral

http://math.ucr.edu/~res/math10B/nonelementary_integrals.pdf

<http://mathworld.wolfram.com/Fractal.html>

<http://ecademy.agnescott.edu/~lriddle/ifs/ksnow/lsnow/htm>

http://en2.wikipedia.org/wiki/Koch_snowflake

http://en.wikipedia.org/wiki/Fractal_geometry

http://www.youtube.com/watch?v=a9xvz_Palg

http://en.wikipedia.org/wiki/Space-filling_curve

http://en.wikipedia.org/wiki/Hilbert_curve

I. 4. Curvature and torsion

<http://mathworld.wolfram.com/IndefiniteIntegral.html>

<http://ada.math.uqa.edu/teaching/math4250/Html/Bishop.htm>

I. 5. Frenet – Serret Formulas

<http://www.math.technion.ac.il/~rbrooks/dgeo1.7.ps>

http://en.wikipedia.org/wiki/Differential_geometry_of_curves

II. Topics from Geometry and Multivariable Calculus

II. 1. Differential forms

<http://tutorial.math.lamar.edu/AllBrowsers/2415/DoubleIntegrals.asp>

<http://www.math.hmc.edu/calculus/tutorials/multipleintegration/>

<http://ndp.ict.ac.il/tutorials/Infitut2/node38.html>

<http://math.etsu.edu/MultiCalc/Chap4/intro.htm>

<http://www.maths.abdn.ac.uk/~igc/tch/ma2001/notes/node74.html>

<http://www.maths.soton.ac.uk/~cjh/ma156/handouts/integration.pdf>

http://en.wikipedia.org/wiki/Multiple_integral

II. 2. Smooth mappings

<http://merganser.math.gvsu.edu/david/linear/linear.htm>

<http://loriweb.pair.com/8polarcoord1.html>

<http://omega.albany.edu:8008/calc3/double-integrals-dir/polar-coord-m2h.html>

http://www.youtube.com/watch?v=ifB-00_sMB4

<http://sces.phys.utk.edu/~moreo/mm08/Ganguli.pdf>

<http://www.ima.umn.edu/videos/mobius.php>

II. 3. Inverse and Implicit Function Theorems

http://www.ualberta.ca/MATH/gauss/fcm/calculus/multvrb1/basic/ImplctFunctns/invrs_fcnctn_explntn_illstrtn2.gif

<http://artsci.wustl.edu/~e4111jn/InvFT14.pdf>

http://www.sas.upenn.edu/~kim37/mathcamp/Eduardo_inverse.pdf

http://en.wikipedia.org/wiki/Inverse_function_theorem

<http://math.ucr.edu/~res/math205C/lectnotes.pdf>

<http://math.ucr.edu/~res/math205A/Lambertfcn.pdf>

<http://apmathw.uwo.ca/~djeffrey/offprints/ITSF2006.pdf>

<http://math.ucr.edu/~res/math144/transcendentals.pdf>

<http://planetmath.org/encyclopedia/ProofOfInverseFunctionTheorem.html>

<http://planetmath.org/encyclopedia/ProofOfImplicitFunctionTheorem.html>

<http://math.ucr.edu/~res/math10B/comments0505.pdf>

II. 4. Inverse and Implicit Function Theorems

<http://math.ucr.edu/~res/math133/metgeom.pdf>

III. Surfaces in 3-dimensional space

III. 1. Mathematical descriptions of surfaces

III. 2. Parametrizations of surfaces

<http://math.ucr.edu/~res/math10B/comments0701.pdf>

III. 3. Tangent planes

III. 4. The First Fundamental Form

<http://www.worldofescher.com/gallery/A29.html>

http://www.mikejwilson.com/solidworks/files/mobius_II_animation.zip

<http://www.physlink.com/Education/AskExperts/ae401.cfm>

http://www.uta.edu/optics/sudduth/4d/nonorientable/moebius_strip/math/mathematics.htm

http://www.mapleapps.com/categories/animations/gallery/anim_pg3.shtml

<http://www.tattva.com/vladi/director.html#6>

<http://mathworld.wolfram.com/MoebiusStrip.html>

<http://mathworld.wolfram.com/PoincareHyperbolicDisk.html>

<http://mathworld.wolfram.com/HyperbolicGeometry.html>

III. 5. Surface area

<http://math.ucr.edu/~res/math10B/discoballs.pdf>

<http://www.math.tau.ac.il/~schuss/infi3/infi18.pdf>

III. 6. Curves as surface intersections

IV. Oriented surfaces

IV. 1. Normal directions and Gauss maps

IV. 2. The Second Fundamental Form

IV. 3. Quadratic forms and adjoint transformations

<http://math.ucr.edu/~res/math132/linalgnotes.pdf>

IV. 4. Normal, Gaussian and mean curvature

<http://astronomy.swin.edu.au/~pbourke/surfaces/monkey/>

<http://www.ma.umist.ac.uk/kd/geomview/monkeysad.html>

http://www.ag.jku.at/digpics_en.html

IV. 5. Special classes of surfaces

<http://www.uib.no/People/nfytn/mathgal.htm>

http://www.uta.edu/optics/sudduth/4d/the_main_gallery.htm

<http://mathworld.wolfram.com/SurfaceofRevolution.html>

http://www.math.arizona.edu/~models/Ruled_Surfaces/

<http://mathworld.wolfram.com/Tractrix.html>

<http://bradley.bradley.edu/~delgado/122/Tractrix.pdf>

<http://www.amherst.edu/~amcastro/MathMedia/galleries/Curves/Tractrix.html>

<http://www.youtube.com/watch?v=AG6kN3w48jl>

<http://ocw.mit.edu/NR/rdonlyres/Mathematics/18-994Fall-2004/179B4DC0-3C84-425A-93E1-9E9D06C83B0D/0/chapter11.pdf>

<http://ctouron.freeshell.net/personal/costa/background.html>

<http://mathworld.wolfram.com/CostaMinimalSurface.html>

<http://mathworld.wolfram.com/MinimalSurface.html>

<http://www.indiana.edu/~minimal/toc.html>

<http://www.zib.de/polthier/booklet/intro.html>

<http://www.csuohio.edu/math/oprea/soap/soap.html>

<http://www.math.unifi.it/~paolini/diletto/minime/index.en.html>

<http://www.miqel.com/pure-math-patterns/visual-math-minimal-surfaces.html>

IV. 5. Special classes of surfaces

<http://www-gap.cds.st-and.ac.uk/~history/BiogIndex.html>

http://en.wikipedia.org/wiki/Hyperbolic_motion

http://en.wikipedia.org/wiki/Hyperbolic_geometry

http://en.wikipedia.org/wiki/Upper_half_plane

<http://mathworld.wolfram.com/PoincareHyperbolicDisk.html>

IV. 6. Map projections

V. Further Topics

V. 1. Compatibility equations, *Theorema Egregium*

http://en.wikipedia.org/wiki/Theorema_Egregium

V. 2. Fundamental Theorem of Local Surface Theory

<http://www-gap.cds.st-and.ac.uk/~history/BiogIndex.html>

V. 3. Riemannian metrics and hyperbolic geometry

http://en.wikipedia.org/wiki/Hyperbolic_motion

http://en.wikipedia.org/wiki/Hyperbolic_geometry

http://en.wikipedia.org/wiki/Upper_half_plane

<http://mathworld.wolfram.com/PoincareHyperbolicDisk.html>