Dr. Sarah's Differential Geometry Tentative Calendar

While some items have strict deadlines, there is still flexibility built in and multiple pathways for success—videos have multiple chances to succeed and projects can be completed ahead plus there is a revision opportunity for one of the first three projects and one in-class assessment. Attempt readings and videos for completion and take video notes by the listed date when possible as the material builds on itself. Some days are lighter than others and it will help you to progress on upcoming activities in advance, especially major assignments.

	Class Monday	Between Classes (by just before 1pm Wed.)	Class Wednesday	Between Classes (by just before 1pm Monday)
1/10–1/12	review 2130 obtain rental book from bookstore	-class intro interactive video -read "Curves" -read 1.1 pp. 1–7 -lines and Maple intro interactive video -download or access Maple	curvature osculating circle parabola and line	-read 1.1 pp. 8–14 -tractrix interactive video -add ASULearn profile pic -Zoom update & profile pic -get to know posting -read the syllabus
1/19	State Holiday		arc length and speed comparing and contrasting curves	-read 1.2 pp. 14–17 -s, T and physical attributes interactive video -practice submitting PDF
1/24–1/26	s, T, velocity, speed, acceleration, jerk helix computations	-read 1.3 pp. 17–19 -TNB 1 interactive video -choice of curve for Project 1	TNB curve of Archytas cycloid and spiral	-read "How Flies Fly" -read 1.3 pp. 19–20 -TNB 2 interactive video
1/31–2/2	TNB spherical epitrochoid matching activity	-read 1.3 21–25 -curvature and torsion implications 1 interactive video -re-engage matching	curvature and torsion Darboux vector fundamental theorem of space curves	-Project 1: research, investigate and present a curve
2/7–2/9	Project 1 presentations	-read 1.5 pp. 34–35 -curvature and torsion implications 2 interactive video -begin assessment guide	curvature and torsion helix and strake	-prepare for in-class curves assessment -complete any open items
2/14–2/16	in-class curves assessment	-surfaces, geodesics and coverings interactive video -read pp. 247–250	covering geodesics cone	-read pp. 67–68, 77–82, 209 -coordinates and geodesic curvature interactive video
2/21–2/23	geodesics sphere spherical coordinates	-read pp. 70–76, 212 -speed of a geodesic interactive video	geodesics round donut double torus	-read "Surfaces" -first fundamental form interactive video -choose surface for Project 2
2/28–3/2	geodesics metric form flat and round donuts	-read pp. 83–87 -shape operator interactive video	shape operator mystery surface round donut Catalan surface	-read pp. 88–91, 91–96, 107–108, 111–114, 123–124 -II and Gauss's Theorema Egregium interactive video
3/14–3/16	π-day Gauss and mean curvature	-read p. 164 -surface area interactive video	surface area matching activity	-read pp. 275–277, 289–292 -Gauss Bonnet video -re-engage matching
3/21–3/23	Gauss Bonnet	-Project 2: research, investigate and present a surface	Project 2 presentations	-read pp. 226–235 -surfaces not embedded interactive video -begin assessment guide
3/28–3/30	surfaces not in $\mathbb{R}^3$ Klein bottles hyperbolic	- prepare for in-class surfaces assessment -complete any open items	in-class surfaces assessment	-read pp. 397–416 -geodesic equations, tensors and spacetime interactive video

4/4–4/6	curvatures Christoffel symbols Γ^a_{bc} Poincaré upper-half plane	-read "How to Create Your Own Universe in Three Easy Steps" -Minkowski spacetime and Christoffel computations interactive video -choose metric for Project 3	spacetime metric form research	-read pp. 416–430 -wormhole metric, curvatures and relativity interactive video
4/11–4/13	curvatures and Γ^a_{bc} Brenton universe discuss final project	-begin final project	work on project 3 or final project	-Project 3: research, investigate and present a metric form
4/18–4/20	Project 3 presentations	-general relativity and the field equations interactive video -read "Relativity"	relativity concluding activities	-course survey -course evaluations
4/25–4/27	work on final project or optional revisions	-complete any open items	share final project idea or title	-final project video
4/29	turn in video presentation on ASULearn by the beginning of our 2pm assigned time during the assigned time, conduct video project peer review and self-evaluation (optional) revisions on one in-class assessment, one of the first three projects			