Errata for

*Differential Geometry: Connections, Curvature, and Characteristic Classes*

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- p. 14, Problem 2.4, second display: $(f'(x))^2$
- p. 24, last display: $D_Z <X, Y>$ should be $Z <X, Y>$.
- p. 30, line 1: on $\to$ along
- p. 40, Problem 5.4: Need to assume that the Gauss map is one-to-one.
- p. 62, (8.5): The second term $-\langle L(X), Z \rangle L(X)$ should be $-\langle L(Y), Z \rangle L(X)$.
- p. 62, last display: $R(X, Y)$ should be $R(X, Y)Z$
- p. 67, second equation in the last display: $(\nabla_X Y)$ nor should be $(\nabla_X Z)$ nor.
- p. 67, last line: $E$ should be $M$.
- p. 69, first display: $R(X, Y)$ should be $R(X, Y)Z$.
- p. 81, Section 11.2, second paragraph: “$X, Y \in \mathfrak{X}(U)$” should be “$X \in \mathfrak{X}(U), Y \in \Gamma(U, E)$”.
- p. 105, Prop. 14.5: Replace “manifold with a connection” with “Riemannian manifold”.
- p. 140, below Equation (17.2): $c(t)$ should be $\gamma(s)$.
- p. 140, the first line of Proposition 17.2: “an affine connection” should be “the Riemannian connection” (because the connection should be compatible with the metric in order to use Proposition 11.4 in the proof).
- p. 141, line 1: $e_{i,c(t)}$ and $De_{i,c(t)}/ds$ should be $e_{i,\gamma(s)}$ and $De_{i,\gamma(s)}/ds$, respectively.
- p. 167, the first line of the proof of Lemma 19.7: $\bigwedge^n V \to V$ should be $\bigwedge^n V \to R$
- p. 179, second display: $f^*(E|_{U_\alpha}) = (f^*E)|_{f^{-1}(U_\alpha)} \sim f^{-1}(U_\alpha) \times V$
- p. 189, the second paragraph of the proof of Proposition 21.1: “To show that $\alpha \wedge \beta$ is smooth” should be “To show that $\alpha \cdot \beta$ is smooth.”
- p. 199, line after second display: Replace “this may be an infinite sum” by “the Betti numbers $b_i$ may be infinite”.
- p. 200, second display: $b^i = b^{n-i}$ should be $b_i = b_{n-i}$.
- p. 209, Section 22.8, first display: $T_pM \times T_pM \to T_pM$ should be $T_pM \times T_pM \to \mathbb{R}$.
- p. 212, lines 7–8: this global form $P(\Omega)$ is closed and its cohomology class is independent of the connection.
- p. 221, second display: The two vertical arrows should be pointing up instead of down.
• p. 235, Section 25.8: “As before, one shows that \([Q(\Omega)]\) is closed and ...” should be “As before, one shows that \(Q(\Omega)\) is closed and ...”

• p. 266, Proposition 29.6, second line: Replace “a manifold \(M\) of dimension \(n\)” by “a manifold \(M\) of dimension \(n\), and let \(\pi : \text{Fr}(E) \to M\) be its frame bundle”.

• p. 279, below Example 31.10: \(\Omega^0_p(P, V)\) should be \(\Omega^0_P(P, V)\).

• p. 289, proof of (ii) and (iii): The sentence starting with “Since the \(\Omega^i\) are right-equivariant ...” is incorrect so that the rest of the proof is invalid. One way to fix this is to follow Kobayashi and Nomizu [12 in the References], vol. 2, p. 295, by first showing that there is a one-to-one correspondence between degree \(n\) homogeneous polynomials and \(n\)-multilinear functions and then continuing with their proof.

• p. 303, line after first display: \(T_pM\) should be \(T_pN\).

• p. 322, solution 2.5: the denominator should have an exponent 3/2.